DOCUMENT RESUME

ED 206 716 TM 810 622

AUTHOR	Peck, Robert F.
TITLE	Coping Styles and Achievement: A Cross-National Study of School Children. Volume I of V Volumes: The Theory, Design, and Validation Results.
INSTITUTION	Texas Univ., Austin.
SPONS AGENCY	National Inst. of Education (ED), Washington, D.C.; Office of Education (DHEW), Washington, D.C.; Texas Education Agency, Austin.
BUREAU NO	HRD-167-65
PUB DATE	Mar 81
CONTRACT	OE-5-85-063; TEA-29390
GRANT	NIE-G-80-0116
NOTE	1,171p.
EDRS PRICE	MF09/PC47 Plus Postage.
DESCRIPTORS	*Competence; *Coping; *Cross Cultural Studies; Elementary Secondary Education; Foreign Countries; *Models; Problem Solving; Student Attitudes; Student Motivation; *Test Construction
IDENTIFIERS	Brazil; England; Illinois; Italy; Japan; Mexico; Texas; West Germany; Yugoslavia

ABSTRACT

This study undertook to develop an improved conceptual system for explaining effective behavior; to build reliable measures of the components of that behavior; to develop and apply the measures internationally; and to validate the measures and concepts against objective criteria of achievement. An eight-nation team defined three sets of components of effective behavior: a sequence of coping actions; feelings and attitudes that facilitate effectiveness; and the intensity and particular kinds of motives for performing effectively. These elements are attained separately, though interactively, in five areas of behavior: achievement, peer relations, authority relations, and managing anxiety and coping with aggression. Projective, self-report, and peer rating instruments were developed with semantically equivalent editions in English, German, Japanese, Brazilian Portuguese, Slovenian and Mexican Spanish; and were given to boys and girls, age 10 and 14, in Sao Paulo, London, Milano, Tokyo, Mexico City, Austin, Texas, Chicago, Illinois, Ljubljana, Hanover, Heidelberg and Koblenz, West Germany. The conceptual system was supported. Coping skills did significantly affect achievement; and skill in the other areas of behavior also affected achievement. Strength of motivation proved a powerful, universal predictor of achievement. The kinds of motives for working significantly predicted achievement, but idiosyncratically in each country. (Author/BW)

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COPING STYLES AND ACHIEVEMENT:
A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

VOLUME I OF V VOLUMES
THE THEORY, DESIGN, AND VALIDATION RESULTS

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TM 810 622

FINAL REPORT
Project No. HRD-167-65
Contract No. OE-5-85-o63
Contract No. 29390 (TEA)
Grant No. NIE-G-80-0116

COPING STYLES AND ACHIEVEMENT: A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

VOLUME I of V VOLUMES
THE THEORY, DESIGN, AND VALIDATION RESULTS

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March, 1981

The research reported herein was performed pursuant to contracts and grants with the Office of Education and the National Institute of Education, Department of Education; and The Texas Education Agency. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Department of Education or Texas Education Agency position or policy.

FOREWORD

The very large, complex testing program required for the study, involving several thousand children in each country, could not have been carried out with the accuracy and completeness which were so vitally necessary, without the extremely hard, thoughtful, dedicated effort of the research staff in each of the participating centers. Thereafter, the development of truly uniform scoring systems for the many instruments and the actual scoring of thousands of protocols were also the product of these researchers, led by the principal investigators. It scarcely does justice to their conscientious, deeply insightful work merely to list their names. But that, at least, must be done, as a very small token of the gratitude each one of them so richly deserves. Station by station, here are the people who carried out the work of the study.

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Although they are named in the list of staff members in the Austin station, special recognition must be given to Elaine (Michelis) Van Avery and Elma Frieling. Mrs. (Michelis) Van Avery worked on the study from its beginning in 1965 until its completion in 1972. She was primarily responsible for developing the objectified scoring systems for both the Sentence Completion and the Story Completion instruments, throughout their intricate evolutions. She also wrote substantial parts of the final manuscripts. Mrs. Frieling has served as executive secretary to the project, meticulously organizing the literally thousands of details which had to be brought together and kept together in order to bring the project to a successful completion.

Robert Peck
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COPING STYLES AND ACHIEVEMENT:
A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

ABSTRACT

Prior to the 1950's, psychological theory dealt almost exclusively with maladaptive behavior. Since then, considerable effort has gone into defining what constitutes adaptive behavior, or competence. This study undertook to develop an improved conceptual system for explaining effective behavior; to build reliable measures of the components of that behavior; to develop and apply the measures internationally; and to validate the measures and concepts against objective criteria of achievement.

Such a conceptual system was built by an eight-nation team. It defined three sets of components of effective behavior: a sequence of coping actions, or skills; feelings and attitudes that facilitate effectiveness; and the intensity of motivation and the particular kinds of motives for performing effectively. It postulated that these elements are attained separately, though interactively, in five areas of behavior: achievement, peer relations, authority relations, and managing anxiety and coping with aggression. Projective, self-report, and peer rating instruments were developed in international conferences, with semantically equivalent editions in English, German, Japanese, Brazilian Portuguese, Slovenian and Mexican Spanish. Standardized achievement tests and the Raven aptitude test were also used. All but one of the instruments proved reliable. (The exception showed considerable validity, warranting further effort to improve it.) The instruments were given to 800 boys and girls, age 10 and 14, upper-middle and skilled working class, in equal numbers, in 1965, in Sao Paulo, London, Milano, Tokyo, Mexico City, Austin, Texas, a pair of communities near Chicago, Illinois, and Ljubljana. In 1968, one instrument was dropped, two were added, and the study was repeated on a new, similar sample of 400 in each site, now including Hannover, Heidelberg and Koblenz, West Germany. (Actually, about 18,000 children were tested in the two years, to fill the exact requirements of the sampling design.)

Recently, advances in research technology and renewed funding made it possible to factor analyze each instrument in each national (and age) sample, then to perform multiple regression analyses to assess the power of the coping and motivation measures to predict school achievement, beyond the effects of aptitude, as well as the effects shared with aptitude. The factors were also compared across cohorts within each country, and across countries, to identify universal and country--specific clusters of coping components, and to assess their stability over time.

The conceptual system was supported, first, by a strong international consensus (.84) that developed over three years, as to what constitutes the sequence of steps in effective coping behavior:

(1) confronting the problem, (2) engaging in action to solve it, (3) initiating that action, oneself, (4) doing it without unsolicited aid or advice, (5) conceiving of the ultimate solution, oneself, (6) implementing that idea, oneself, (7) persisting to a satisfactory conclusion (or recognition that the situation is genuinely unsolvable), (8) achieving an effective solution. Further support came from findings that five Sentence Completion coping skill factors were common to all countries, and that effective coping did include, at least, confronting and engaging problems; and, as the theory also postulated, showing neutral or positive feelings in the process. Another instrument showed coping and defensiveness to be separate and largely opposite, as postulated.

The regression findings further supported the theory, and the validity of the instruments. Overall, the coping/motivation measures showed more power to predict achievement, both alone and in conjunction with aptitude, than almost any previous non-cognitive measures have shown. Coping skills did significantly affect achievement; and skill in the other areas of behavior also affected achievement. Defensive behavior had adverse affects, almost everywhere.

Strength of motivation, especially educational aspiration level, proved a powerful, universal predictor of achievement. Most young people seem to evaluate their own academic skills realistically, and match their ambitions to their skills.

The kinds of motives for working also significantly predicted achievement, but idiosyncratically in each country. Most countries had a distinctive national profile of valued career-rewards that was stable over time.

Two topics that appear worthy of further research are: the possible causal linkages between national styles of coping and motivation, and national patterns of economic growth; and a longitudinal study of persons from child to adulthood to determine the continuity of coping skills and motives into adult life, and their effects on career choice and career effectiveness. (Such a study is now underway in Austin, Texas.)

The many diverse patterns in the present data illustrate the importance of adopting Kurt Lewin's view of human life as a multivariate, interactive process whose lawful regularities cannot be explained by oversimplified general "laws" of behavior, but only by a Person-Environment-Interaction model. While the present evidence almost a[illegible] supports the general idea that independent coping skills and the motivation to use them are important for effective achievement, it equally illustrates that there may be crucially important differences in the particular skills and the particular motivations that work best in different societies. What is more, changes in these particulars can occur over a relatively short time within any one modern society.

Educationally, the findings suggest it is important to train children and encourage them to be self-starting, self-sustaining, independent problem solvers. Moreover, they need to learn to cope well with anxiety, aggression, and interpersonal relations. Apart from their intrinsic value, these skills strongly affect academic learning.

BIOGRAPHICAL SKETCHES OF THE PRINCIPAL INVESTIGATORS

Calegari, Paolo

Paolo Calegari (born in 1937) is Professor of Social Psychology at the Padova's University (seat of Verona). Doctor of political sciences (1961), specialized in Psychology (1967). He obtained the Chair in 1980. Author of more than 50 articles and 8 volumes within the areas of normative psychology, human values conformity, competitiveness and other domains of social psychology and socio-psychology.

Cesa-Bianchi, Marcello

Marcello Cesa-Bianchi (born in 1926) is full Professor of Psychology and Director of the Institute of Psychology at the Medical Faculty of the Milan's University. He is past president of the Italian Society of Psychology. Doctor of Medicine (1949), specialized in Psychology (1951) and in Neuropsychiatry (1953), he obtained the qualification for University teaching in 1956 and got the Chair in 1963. Author of more than 300 articles and 12 volumes in the areas of methodology and general psychology, human development, medical psychology and applied psychology.

Diaz-Guerrero, Rogelio

Rogelio Diaz-Guerrero was born in Guadalajara, Mexico, August 3, 1918. Received an M.D. from the National University of Mexico in 1943 and M.A. and Ph.D. in Psychology from the State University of Iowa in 1944 and 1947. Was President of the Mexican and the Interamerican Societies of Psychology and Vice-President of the International Union of Scientific Psychology. Has published over 100 papers and 12 books. His fundamental research interests center on the effects of traditional culture upon cognitive and personality development. In 1976 he received the Interamerican Psychology Award from the Interamerican Society of Psychology. His present position is: Research Professor, Faculty of Psychology, National University of Mexico, and President, National Institute of Behavioral Sciences and Public Opinion, A.C. (INCCAPAC).

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Robert J. Havighurst has been on the faculty of the University of Chicago as Professor of Education and Human Development since 1941. He has conducted research on children and adolescents in collaboration with colleagues in Europe, Latin America, New Zealand and Australia. He held Fulbright Professorships at Canterbury University in New Zealand and the University of Buenos Aires. From 1956 to 1958 he held a UNESCO appointment as Co-Director of the Brazilian Government Center for Educational Research. Publications in the field of Comparative Education are Comparative Perspectives on Education; A Cross-National Study of Buenos Aires and Chicago Adolescents; Cross-National Research: Social Psychological Methods and Problems.

Jaide, Walter

Walter Jaide (Prof. Dr. Phil), psychologist was born in Berlin, May 10, 1911; s. of Franz J.A.: 2 Bismarckstr., 3 Hannover. EDUC: 1929-36, stud. Protestant theology, economics and psychology; 1936, doctorate.CAR.: research asst., Wurzburg University, then for short period vocational guidance consellor at Hanover Labor Exchange; during WW II Army psychologist; 1947 at Hanover PH (under Adolf Grimme); lectr., 1958, assoc. prof., 1963, full prof. at and 1963-64 pres. of Hanover PH, since 1968 dir. of Inst. on Juvenile Questions (Forschungsstelle f. Jugendfragen). Hanover PH. PUBL.: "Das Wesen des Zaubers" (dissertation), Leipzig, 1937; "Die junge Arbeiterin," Juventa, Munich, 1960; "Eine beue Generation," Juventa, Munich, 1961, nd ed. 1963; "Das Verhaltnis d.Jugend zur Politik," Luchterhand, Neuwied, 1964; "Die jungen Staatsburder," vol. 8., Deutsches Jugendinstitut, Munich, 1965; "Die Berufswahl," Juventa, Munich, 2nd ed. 1966; "Leitbilder heutiger Jugend," Luchterhand, Neuwied, 1968; Junge Arbeiterinnenm" Juventa, Munich, 1969; Jugend u. Demokratie," 1970. "Jugend im doppelten Deutschland" (with Barbara Hille), Opladen 1977; "Achtzenhnjahrige swischen Reaktion und Rebellion," Opladen 1978; "Jugendliche im Bildungsurlaub (with D. Hinz), Stuttgart 1979; "Junge Hausfrauen im Fernsehen," Opladen 1980; 40 contbns to sci. journals, manuals, reports, recommendations, anniversary editions, etc.; some 90 contbns. to political, pedag. and popular mags. and newspapers, admin. periodicals, etc.; numerous lectrs. on German and foreign radio and TV; co-editor of "Vocational Psychology" (handbook), 1976. MEM.: Dt. Ges. I. Psychologie; PEN Club. RECR.: art history.

Kubo, Shunichi

Schunichi Kubo was born in Tokyo, Japan in 1908. Graduated from Department of Psychology, Tokyo University in 1931; member of the Medical Staff, Psychiatry Department of Medical School, Tokyo University, 1931-32; Research member, Physiology Department of Medical School, Tokyo University, 1932-33; Research member, Medical Department of Navy, 1939-43; Research member, Educational Department of Army, 1943-45; Chief researcher, the National Institute for Educational Research, 1945-71. Main publication: Academic Achievements of Japanese Children, Tokyo: Fukumura Publishing Co. 1956.

Manaster, Guy

In 1969, upon receiving his Ph.D. from the Committee on Human Development at the University of Chicago, where he had been Project Director for the Cross-National Study, Guy J. Manaster went to The University of Texas at Austin, Department of Educational Psychology, as an Assistant Professor. His teaching has been in the developmental, social, personality and counseling psychology areas. He has written Cross-National Research: Social Psychological Methods and Problems (1972) with Robert J. Havighurst, Adolescent Development and the Life Tasks (1977), edited Alfred Adler: As We Remember Him (1977), and has published or presented over fifty papers in these areas. Since 1976 he has been Editor of the Journal of Individual Psychology. He is presently Professor of Educational Psychology and Director of the Counseling Psychology Training Program at The University of Texas at Austin.

Miller, Kenneth M.

Kenneth M. Miller graduated from the University of Melbourne in 1950. He went to London and obtained his doctorate from University College London in 1954. During that time he was a lecturer in the Psychology Department of University College London and later in the University of Tasmania. In 1958 he returned to England and was a senior Research officer first at University College London and later with the National Foundation for Educational Research. He was appointed Director of the School Examinations Research Unit of the University of London in June 1965. He left the University in December 1967 in order to help establish the Independent Assessment and Research Center which works within the fields of education and industry.

Peck, Robert F.

Robert F. Peck was born in 1919 in Buffalo, New York. Ph.D. in Human Development, University of Chicago, 1951. Taught at University of Chicago from 1947-1954; University of Texas at Austin, 1954--; Prof. Education Psychology; Director, Personality Research Center, 1958--; Founder and director, Research and Development Center for Teacher Education, 1965-77, Chairman Executive Council, 1977--. Publications: The Psychology of Character Development; over 200 book chapters, articles, and scientific reports. Major interests: life-span development research; cross-cultural research; personality assessment research, with applications to education and industry; psychotherapy. Secured funding and served as director of the present Cross-National Study; designed and directed six other multivariate, multi-year projects in basic and applied research since 1957.

Piquardt, Rolf H.

Rolf H. Piquardt was born November 13, 1940 in Berlin, West Germany. Education: Studied Germanic and French literature and linguistics and psychology at Bonn and Hamburg Universities from 1960-1966. Graduation as "Diplom-Psychologe" at Bonn University under Prof. Thomae. Experience: Research assistant and principal investigator in the Cross-National study, together with Prof. Jaide (Hannover) and Weinert (Heidelberg), from 1967-1970. Assistant and lecturer at Bonn University and Teachers' College Koblenz in 1971. Professor at the "Fachhochschule Rheinland-Pfalz, Abt. Koblenz, Fachbereich Sozialpadagogik" (College for Social workers and pedagogues) since 1972. Staff member in the Committee for Curriculum Research and the Improvement of High School Teaching and Evaluation at the Ministry of Education, Mainz, from 1971-1974. Since 1972, cooperating school psychologist in a project on counseling in German High Schools. Major Fields of Interests: Developmental and Educational Psychology. Publications in the field of Social Work and Education.

Scalera, Laura

Laura Scalera (born in 1938) is staff psychologist within a unit of mental health service (Child psychology) for the municipality of Milan. Doctor in political sciences (1962), specialized in Psychology (1969). Author of about 10 scientific papers within the area of applied psychology (handicapped children) and of human development.

Weinert, Franz E.

Franz E. Weinert, born 1930 at Komotau (Tchechoslovakia); professional experiences as teacher and head of several primary and secondary schools (1950-1959); student of psychology (University of Erlangen 1952-1955); degrees: Diplom-Psychologe (1955); Dr. Phil. (University of Erlangen 1958); Habilitation (University of Bonn 1966); Assistant Professor at the Universities of Wuerzburg-Bamberg and Bonn (1959/60-1966); Professor of Psychology at and Chairman of the Department of Psychology, University of Wuerzburg-Bamberg (1967-1968); Professor at and Chairman of the Department of Psychology, University of Heidelberg (since 1968); major research interests: cognitive developmental psychology, learning and memory, instructional psychology; publications in this field; editor of several serials and book series; consultant and member of several planning and research committees and foundations; vice-president of the Deutsche Forschungsgemeinschaft.

Tolicic, Ivan

Ivan Tolicic, Professor of Psychology in the Faculty of Arts at the University of Ljubljana, Yugoslavia. He has conducted a number of major research studies, including Achievement and Personality Characteristics of School Children in Relation to Environment, Ljubljana, June, 1977. This study was supported by the Institute of International Studies of the U.S. Office of Education. As in the present research, this study was done in cooperation with Professor Leon Zorman.

Zorman, Leon

Leon Zorman, born in Ljubljana, Yugoslavia (1929), is Professor of Educational Psychology at the Edvard Kardelj University of Ljubljana. He obtain his Ph.D. in Psychology at the same University (1965). His research interests and many written articles and (short) books include problem of the improvement of marking and and reporting practices, problems about education in relation to society, evaluation of curricula and other learning problems. He is presently doing research about school anxiety problems and the construction of tests for reading achievement. He is author, with I. Tolicic, of Construction of Achievement Tests and Their Use in Schools (Ljubljana 1974), and Achievement and Personality Characteristics of School Children in Relation to Environment (Ljubljana 1977).

SECTION I

OVERVIEW

COPING STYLES AND ACHIEVEMENT: A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

The University of Texas at Austin

1981

SECTION I

OVERVIEW

INTRODUCTION

What is it that people do when they meet life effectively? Until the late 1950's, the language and the theory of psychology and psychiatry were almost totally negative. Mental health professionals explained in great detail many different ways people have of behaving ineffectively (Freud, 1927). Well-developed theory existed to explain maladaptive acts: defense mechanisms, developmental fixations or regressions, psychotic and neurotic thought processes; but there was no organized, tested concept system for identifying the components and the dynamics of healthy behavior (Jahoda, 1958). However, some people were beginning to explore this area.

R.W. White (1959) put forward his seminal paper on the competence motive. His ideas started a change toward describing people in terms of what they are effective (competent) at doing. Lois Murphy (1962) gave new form and focus to this trend by reporting her observation of what children do when they do things right, in The Widening World of Childhood. Her work also gave new meaning to an old phrase, "coping behavior." Soon thereafter, Haan (1963) began a series of studies that distinguished coping mechanisms from defense mechanisms, in a well balanced system. At the same time, Coelho et al., (1963) were doing pioneer studies of adolescent coping behavior. All of these research efforts were aimed at describing and explaining what people did to maintain positive, healthy behavior.

However, at that point, coping mechanisms were described largely in terms of internal, psychodynamic processes. Although such concepts seemed valid, they could only be applied to peoples' behavior by complex clinical judgment, a very expensive process and not always reliable. It looked to the initiator of the present study as though it would be valuable to find a way to define the kinds of observable actions that constitute effective behavior, not as a substitute but as a supplement to the emerging theory of coping. These observable coping actions could be defined, measured and linked with effective behavior outcomes. Such a system should make it easier to diagnose deficiencies and help people learn specific things they can do to cope more effectively with life.

Up to that date, research on coping had used, basically, observational and projective methods. Murphy (1962) had used observational data to describe coping behavior. Coelho (1963) and others had used the Student Thematic Apperception Test in which students wrote stories about the pictures. This technique was used cross-culturally (Remmers, 1962) to compare the self-perceived problems of youth in Puerto Rico, West Germany, India, and the United States. Elsewhere, Haan (1963) had used extensive interviews, with an elaborate rating system applied by the interviewer and by independent judges. The sentence completion technique had not been used in the study of coping behavior. It appeared that objective measures with strong psychometric properties could perhaps be developed and standardized, to assess observable coping behavior.

Furthermore, the subjects for most of these studies had been American, white, middle-class people. In order to develop a sound, general theory about the role of coping behavior in human nature, it would have to be tested with minority groups, and cross-culturally. This would be necessary to avoid the error of generalizing incorrectly from people of one class, in just one culture. So, the inquiry needed samples from diverse cultures--as different as other features of the research design would permit.

With these ideas in mind, in 1964 the initiator of this study began working with an international team of researchers who had similar goals of studying coping behavior. As it turned out this team of researchers concluded that it would be highly desirable to develop a concept system that describes effective behavior in terms of observable acts and expressions, in order to reduce the risk of misinterpretation across cultural or linguistic boundaries. For the same reason, objectively scoreable measures of coping behavior were also considered necessary.

This team of researchers concluded that it would be most desirable to choose a domain of behavior in which objective, independent criteria of effectiveness could be obtained, criteria that would be highly similar across the cultures. It would be equally desirable that the domain have practical importance for everybody. For these reasons, it was decided to focus on the domain of achievement, both because children's achievement in school could be reliably assessed, as a criterion of effectiveness, and because school achievement in youth has been demonstrated to be a powerful predictor of people's performance through their adult careers (Kohlberg, 1972). Furthermore, determining the elements of effective work in school would be extremely useful to parents and educators. If this effort were successful, it might later be fairly easy to extend it further, to describe and explain what makes adults effective in their work.

No one aspect of life, however, can be divorced from the other parts of life. Effectiveness in dealing with one often influences effectiveness in another. Therefore, it seemed necessary to look at effectiveness in four other domains of life which research, theory, and everyday observation show to have an impact on achievement: relationships with authority, relationships with age mates, the management of anxiety, and the management of hostile, aggressive encounters.

In 1964, an international study was begun that undertook to test these general propositions:

1. It will be possible to develop a conceptual system that defines the essential components of effective behavior and is applicable in all the countries represented in the study.

2. It will be possible to develop reliable instruments for measuring these components in all the countries, in a closely comparable way. Where possible, these instruments should be economical enough to be usable with large populations of students, if they prove to be reliable and valid.

3. While all items in each instrument will be commonly used in all countries, the way in which children combine them into clusters may well vary by the age or nationality of the children. Such clusters represent sets of associated ideas or mental constructs, which may be particular to different subcultures. If variations in these idea-sets do exist it will be possible to measure and compare conceptual similarities and differences that may stem from developmental (age) changes, or from country-specific concept-patterns. (There may also be sex or socioeconomic differences, as well. These will be reported, too.)

4. It will be possible to predict a significant part of school achievement in each country by these measures, thus validating the conceptual system. This will also establish the practical utility of the instruments, if the effort is successful.

These propositions are used to structure the remainder of this report. First the evolution of this study is presented: Chronology and Organization. Following that is a description of the theory of effective behavior developed and tested in the study. The instruments and procedures are described in the Methods section. Then, the Results section is structured according to these four propositions. Finally, Conclusions and Implications of the study are provided.

THE CHRONOLOGY AND ORGANIZATION OF THE STUDY

Preparatory work for the study began in 1963. At that time, several of the investigators had been doing collaborative international research on a small scale for six or seven years, as a corrective to a culture-bound view of "human nature." On the basis of Harold and Gladys Anderson's (1961) work, a Story Completion instrument looked like a promising, open-ended way to elicit peoples' responses to a specified problem. Work with the Sentence Completion in several different kinds of studies had shown its valuable properties as a manageable research tool (Rohde, 1957; Peck, 1959). Pilot work with these measures was subsequently undertaken in two countries. As thinking narrowed down to career-related achievement as a focus, lessons from work in industry (Peck & Parsons, 1956) indicated the usefulness of Super's (1957) thinking on occupational values, and the simplicity and importance of asking people what they want to do in life, and how far they want to get, as a way of assessing the strength of their motivation.

With the general idea of the cross-cultural study of effective achievement behavior in mind, a possible strategy or two, and some possible measures, funding was secured from the U.S. Office of Education for an invitational planning conference. This was held in 1964, with representatives from the universities of Bonn, Chicago, Mexico, Milan, Sao Paulo, and Texas. The participants were selected for their known research interests and capability, and because their countries represented a rather wide range of growth rates in their national economies. (Japan and England were soon added to fill out the range of economic growth rates.)

The idea for a study was presented and several alternative strategies for pursuing it were laid out, including the one described here. Three days of lively discussion ensued. The topic interested everyone. The only major question was which of several strategies to pursue. Three major alternatives were reviewed at length. The first idea was a clinical study. It would select a sample of people at work, interview them intensively and possibly observe them in their natural settings. This had many attractions but it was finally rejected on several grounds. It would be a very expensive study to conduct with samples large enough to allow generalization (Pearlin and Schooler [1978] recently took this interviewing approach). It would be hard to arrive at specification of the particular behaviors that led to clinical ratings or complex evaluations, and thus it would be difficult to compare judgments made by researchers in different cultures, in different languages. (Heath [1977] later undertook a study that attempted to deal with these complexities.) This strategy also kept the participants thinking in the language of internal dynamisms and existing psychodynamic theory; few ideas were developed that offered much promise of leading to the kind of behavior-describing system and measures that were sought.

The second alternative was to create a standardized laboratory setting where children could be taken through some problematic situations and their behavior could be minutely recorded. Two main objections were voiced: (1) It would be far more difficult than many experimental psychologists realize, it was pointed out, to make the experience really psychologically similar for children in different cultures. The participants from two countries, in fact, were quite sure it would strike their children as a strange, disturbing experience. Establishing a baseline of "normal" reactions thus looked hard to achieve, especially across cultures. (2) It would be extremely costly to do this with more than modest-sized samples, thus limiting the generalizability of any findings.

The third alternative was the one finally chosen: to study large, representative samples of school children, using a psychometric battery. Thousands of details of scale selection, item-wording, administrative tactics, scoring systems, and analysis would have to be decided by the research team, under this proposal.

An organization plan was worked out to remove the "colonialism" which had marked some previous international studies, sometimes to the ultimate detriment of international collaboration. Instead of a plan made in one country alone, with scientists in other countries simply enlisted to carry it out, it was proposed to create a consortium of independent national research teams. Following the planning conference, a detailed research proposal was written, and the instruments were revised along the lines agreed upon in the conference. When a grant was secured, it was managed in the following way. A two week work conference was held in mid-1965. A minutely detailed research plan was worked out by the consortium, to be executed similarly at each site. All subsequent memos, on all topics, from each station were sent simultaneously to all stations. The central station kept track of all final decisions, but consensus ruled. Each center received and spent its share of the budget, paid one quarter in advance, as an independent sub-contractor. This gave each principal investigator the freedom to make those arrangements which would best accomplish the objectives of the study in his own national milieu. This was also the only way the overseas centers could have the funds to pay staff each month. Such fiscal details may seem trivial; but, in fact, it was only by giving complete control and faith to each principal investigator that some of them could undertake this extremely heavy commitment, at all. When funds later ran short, or out, few executants in the colonial model could or would have stayed on to the finish, as did all of the members of this consortium.

In August, 1965 the full-scale study began. West Germany had to drop out of Stage I, (see below) for legal reasons; but finally local funding was arranged, and the West German team rejoined the study for Stages II and III. The money thus freed was used to fund an English research unit. Money had been reserved in the original plan in the hope of enlisting a Japanese partner. In October, 1965, a visit to the National Institute of Educational Research in Tokyo secured their participation. At about the same time, two professors at the University of Ljubljana of Yugoslavia volunteered to join, doing the whole body of work with very limited project funds, and the help of some of their students.

The research was planned in three stages:

Stage I Psychometric Assessment of a stratified-random sample of 400 ten year olds and 400 fourteen year olds at each site.
Stage II Intensive, structured interviews with parents of 10% of the Stage I children.
Stage III Replication of Stage I.

A two week conference of all consortium members met each year. In addition, teams from adjacent nations met in interim conferences of three or more stations, once or twice each year. Stages I and II were carried out as planned. Testing of the first sample was completed by Summer, 1966. The exploratory development of scoring systems for the projective instruments was underway by then, as was scoring of all the other instruments. In a Congressional budget cut in 1968, the sponsoring agency kept this project alive when many others were simply cancelled; but the study suffered a 60% cut in its annual budget. Due to repeated central computer malfunctions this same year, data analysis could not be completed at a critical point. Instrument revisions for Stage III could not be made on the basis of a comparison of achievement data with the coping instruments. Thus, instruments were revised on the basis of investigators' educated guesses and observations.

All Stage III data were collected by the Fall of 1969. With reduced staff everywhere, the coding, scoring and compilation of test results was stretched out, but all of this was completed by 1971.

Statistical analysis of all the Stage III data occupied the very small remaining staff at the central station through 1973. Writing of the thousands of pages of technical reports kept the principal investigators at all stations working, unpaid for part of their time, through 1974. At that point, the results of all correlational analyses and analyses of variance had been presented, describing age, sex, SES, and national patterns on over 200 individual variables (Peck, et al., 1972, 1973, and 1974).

This was not yet a satisfactory distillation of the data, due in part to the state of the art in research practice up to then. While the original proposal had specified multiple regression techniques as a more powerful approach, two factors caused a retreat to the simpler approach. Investigators in several countries believed that the statistical understanding of most educators would be strained by anything more than correlational or ANOVA findings. More significantly, consultants to the project, including some pioneers in multiple regression techniques, did not see clearly how to reduce the variables to a more economical and stable set, and carry out a more powerful regression analysis in a way that would answer the logical questions of the study.

In 1974, as an extension of another study of coping behavior (Peck, 1977), a reanalysis of the cross-national data was begun. The exact procedures were experimentally evolved over considerable time. The basic purpose was to reduce the complex number of variables to a meaningful set of factors. On the basis of these analyses, factor scores were computed, using a unit weighted approach, and utilized in a regression analysis. This method has been suggested by Kerlinger and Pedhazur (1973); and Morris (1979) has recently demonstrated that it can produce reliable information.

THE THEORY OF EFFECTIVE BEHAVIOR DEVELOPED AND TESTED IN THE STUDY

The four propositions, or aims, of the study were to (1) develop a conceptual system that defines effective behavior, (2) develop reliable instruments to measure these; (3) identify idea-sets (item factors) that may be particular to each culture or age group; and (4) validate these factors against objective criteria of achievement, in each country.

The first aim, to develop the theory, met with success. A conceptualization of the components of effective behavior was developed which proved acceptable and reliable in all of the participating countries, to a high degree. The theory and the derived hypotheses did not unfold in a simple, sequential way, but it is simplest to present them in their final form. Table 1 shows the major components of effective behavior, and the instruments and variables that were developed to measure them.

The system assumes that effective behavior is the resultant of three major components: Coping skills for dealing with problems, the motivation to apply those skills, and feelings and attitudes that foster or impede effort and clear thinking. The diagram in the lower left corner of Table 1 is meant to convey two ideas: (1) Behavior is not all of a piece, but may vary in effectiveness from one to another of five areas of experience: relationships with age mates (interpersonal relations), relationships with people in authority, issues of achievement, the experience of anxiety, and encounters with hostile, aggressive impulses and actions: (2) Effectiveness in one area may be influenced by skills, attitudes, or motives in another area.

Four of these areas were selected for attention because they were believed to bear on a person's effectiveness in meeting issues of achievement, the central focus of the study. The arrows in the diagram signify the belief that effective achievement behavior is likely to be influenced by peoples' effectiveness in the other four aspects of life; and, conversely, that effectiveness in achieving will often influence peoples' feelings and actions in dealing with the other areas of experience.

The Coping Skill System

From 1963, Story Completion items were used as a way of eliciting and comparing different children's responses to standardized problem situations. In finishing a story that poses a problem situation, many children described their thought process, their feelings about the problem, how they picture the hero or heroine acting, what external forces may be at work, and what the outcome of the effort is.

All of the researchers well knew, by long experience, that a story completion, like a TAT story, cannot be taken as a face-valid picture of the way a person actually deals with a real problem. In an effort to create a reliable, cross-nationally comparable way of using the Story Completion instrument, nonetheless, a great amount of time and effort went into developing a psychometric scoring system. These scores were reliable above the .85 level, internationally; they proved, however, to have little or no relation to achievement and therefore were dropped from the reanalysis.

Nonetheless, this instrument did serve its other, original purpose as a heuristic device. It was by reading and thinking about several thousands of these stories from 1964 to 1968, that the picture emerged of a branching tree of sequential coping actions, describing the steps people go through as they deal--or fail to deal-- with a problem. It then became possible to score the Sentence Completion using this concept system. These Sentence Completion measures of coping skills did show appreciable validity in predicting achievement. Further, a new questionnaire, the Views of Life, was also constructed to measure these coping skills; and these, too, showed validity, as will be seen later.

Considerable time was spent over the next three years trying to develop a reliable system for describing coping behavior. Such a system did prove attainable, by proceeding from the raw samples of behavior to a final evaluation of their coping effectiveness, through a two-stage process. First, a coding manual was developed with which judges in all countries could classify any response into a descriptive category, with reliability above .95. In a second, separate step, each class of responses in this coding manual was then assigned a value on a one-to-five scale for evaluating coping effectiveness. Each national team was left free to give a coping-effectiveness value to each response-code as it saw fit. Nevertheless, when a sample of stories from all countries was circulated, in English, to conceal the nationality of the children, and when these were coded and scaled by all national teams, the average agreement on the overall coping effectiveness score was .84. This result indicated substantial international agreement on what constitutes the elements of effective coping action. As a final check, 80 protocols in four countries were qualitatively rated for "overall coping effectiveness." These global scores were correlated with the coping scores based on the coding manual. The agreement of the objective scoring system with the qualitative rating ranged from .79 in Brazil and Japan to .91 in Italy. The evidence from these several kinds of analyses led the international team to conclude that it had succeeded in developing an internationally usable, reliable concept system for describing the components of effective coping action.

The system is outlined in Table 2. It can be applied to any sample of behavior in real life that shows how a person reacts when confronted with a problem. "Behavior" includes overt statements the person may make about his own thoughts, as well as the actions the person takes. The system is sequential.

The first question is, does the person mentally confront the problem or not? Whenever the person thinks and talks about the issue, or expresses an intent to deal with it, this deserves credit as a confronting stance, whether or not action follows. Frequently, in every day affairs, this stance must be inferred from the person's actions; but such devices as interviews and diaries can often elicit evidence of mental confrontation, whether or not this ultimately leads to action. A purely emotional reaction which leads to verbal or physical aggression, with no attempt to deal with the substantive issue, is classed as non-confronting, non-coping behavior.

If the person does confront the issue, the next question is, does he try to do something about it; does he engage in coping action? If he does, the parallel question is, who initiates this action: the person himself, someone else, or he and another person, jointly? The international network of investigators found themselves reaching a surprising consensus in deciding that immediate engagement is usually more effective than delayed engagement, and that self-initiation usually represents better coping than other-initiation or even joint initiation of an attempted solution (Pearlin and Schooler, 1978). There certainly are circumstances where these may not be the optimal tactics but, overall, people who took direct action, on their own initiative, most often seemed to be the best copers.

Sometimes, when a problem arises, either solicited or unsolicited advice enters the picture. In quite a few circumstances, it may be very wise to seek and use advice in working out a solution. Again, though, it looked to the research staff as if the better copers were those who tackled problems on their own, without often calling for help, or having it recurrently thrust upon them, as if people who knew them did not expect them to cope well on their own.

The next question is, who originates the specific idea that is selected to solve the problem? Sometimes, this cannot be identified separately from the initiation of action; but frequently the idea for the final solution arises after action has been initiated. Is the solution conceived by the person himself, by someone else, or through a joint effort? Once again, other things being equal, it appeared that self-solving of problems tended to mark the better coper.

Once a trial solution has been decided on, the question is, who implements it: the person, someone else, or both? As with the solver dimension, the order of effectiveness runs from "self" to "joint" to "other" implementation.

The next question is, how much does the person persist in trying to reach a solution? On the whole, better copers were thought to be those who would try alternative solutions if the first or second one didn't work, up to some point of vanishing returns. When a first effort does not work, or when an obstacle is encountered, non-copers may explode in angry frustration, blame someone or something else, or simply give up.

The final test of effective coping, though not the only one, is the effectiveness of the outcome. In every day life, there are times when a problem simply cannot be solved. No matter how much ingenuity and effort an individual may apply, some situations permit no satisfactory resolution. Nonetheless, in looking at a variety of problems, it seemed that good copers most often did succeed in working out at least a somewhat satisfactory resolution. "Happy endings" are sometimes the result of luck, or of someone else's generosity--but that is not the way to bet. Certainly, when it is the culmination of responsible, autonomous judgment and action, capping effective behavior at each earlier step in the coping sequence, a successful outcome is primarily a credit to the individual's effective coping behavior.

The very last step in the sequence shown in Table 2 is not a coping action, but an affective reaction: self-evaluation of the outcome. Logically, it belongs in the affective components; but it is useful to take account of it immediately following the "objective" evaluation of the outcome (by others). When a successful outcome is judged effective by the doer, all is well. When the person is dissatisfied with an ineffectual outcome, that may be frustrating, but it is realistic. When there is disparity of judgment, either way, the person is being unrealistic--either too self-critical, or too self-congratulatory. Self-evaluation, therefore, can be taken by itself as a measure of contentment or happiness over the outcome. It can separately be compared, as well, to the "objective" value of the outcome. In that case, congruity would seem to spell good coping; incongruity, poor coping. The degrees might vary over a considerable range.

Affective Elements of Effective Coping Behavior

Feelings and attitudes are a powerful force in motivating behavior. They also can strongly facilitate or disrupt the attention, perception and judgment a person tries to apply to a situation. They soon reflect, too, the person's success or failure in dealing with a class of problems, thereafter fostering or impeding effort and effectiveness in future situations of that kind (Coopersmith, 1967).

As the theoretical system evolved for describing effective coping, it was decided to adopt the general hypothesis that a positive attitude toward a particular class of problems (peer relations, e.g.) would be associated with effective coping in that realm of life; that a neutral, unemotional reaction would also facilitate good coping; whereas a negative attitude, whether hostile or depressed, would tend to impede coping effectiveness.

Three aspects of self-evaluation were measured in the study because they are known to affect morale and effort, in and out of school. One, self-evaluation of the outcome in dealing with a specific problem, was identified in the Story Completion data, but it was not used in the final reanalysis. The second is locus of control (internal or external), shown by Rotter (1966), Crandall (1965), and others to influence school performance by making a person feel there is a chance to shape life satisfactorily, not just remain a helpless pawn. The other dimension is self-esteem, also known (Coopersmith, 1967) to have a facilitating or inhibiting influence on effort. The latter two dimensions were assessed by certain items in the Stage III Views of Life instrument.

Motivational Components of Effective Behavior in the Achievement Realm

Achievement in school was selected as the principal independent criterion of effective coping, against which to validate the coping concepts and measures. Level of aspiration for schooling, and for ultimate career-status, were selected as indices of the strength of motivation to excel, which should affect school achievement, over and above the effects of aptitude and coping skill.

Further, drawing largely on Super's work, a set of fifteen career-values was selected that seemed likely to have differential impact on achievement. Again, the prediction was that such motivating values would affect achievement over and above the effects of aptitude and coping skill. A simple, broad hypothesis was also formed, using Super's (1957) classification of intrinsic and extrinsic motives, that the intrinsic values would correlate positively with achievement; the extrinsic ones, negatively.

Thus, the concepts evolved during the inductive phase of the study formed a theoretical system for explaining effective behavior. The variables shown in Table 1 represent specific hypotheses about dimensions of coping skill, motivation and attitude that should prove to have significant influence on effective behavior in school, as indexed by three achievement measures: Reading Achievement, Mathematics Achievement, and Grade Point Average.

Table 1

The Components of Effective Behavior and Their Measures in This Study

EFFECTIVE BEHAVIOR

COPING SKILLS → EFFECTIVE BEHAVIOR ← MOTIVATION

COPING SKILLS

Confront (SC, VOL)
Engage (SC)
Initiate (VOL - Initiate, Independent)
Conceive of Solution (VOL)
Use Aid or Advice (SC)
Implement (VOL-Implement, Instrumentality, Active Under Stress)
Persist (St.C)
Achieve Solution (SC-Copes, SAI-Copes, not defensive)

MOTIVATION

Educational Aspiration	(D)
Occupational Aspiration	(OII)
Finds intrinsic value in work	(VOL
Wants earned vs. bestowed status	(VOL)
Puts achievement ahead of Interpersonal Relations	(VOL)
Preferred career rewards among 15 possible values	(OVAL)

(Intrinsic rewards likely to foster achievement; Super, 1957)

ATTITUDES AND FEELINGS ↑ EFFECTIVE BEHAVIOR

ATTITUDES AND FEELINGS

In Five Areas of Life

Positive Attitude	(SC)
Positive Affect expressed	(SC)
-Depressive Affect expressed	(SC)
-Hostile Affect expressed	(SC)

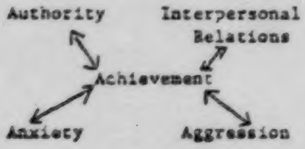
General

Views life as complex	(VOL)
Emotionally expressive	(VOL)
Prefers competition to cooperation	(VOL)

Self-Evaluation

Locus of Control	(VOL)
Self-Esteem	(VOL)

Effective Behavior in Five Areas of Life



Instruments

SC = Sentence Completion
VOL = Views of Life
OVAL = Occupational Values
OII = Occupational Interests Inventory
D = Demographic Questionnaire
St.C. = Story Completion

Table 2

SEQUENTIAL SKILLS IN THE COPING PROCESS

	Non-Coping Behavior	COPING BEHAVIOR			
		Coping Acts	Additional Components of Coping Effectiveness	Quality of Coping	
				Moderate	High
1.	No	CONFRONT			
	AGGRESSIVELY		CONSTRUCTIVELY	Delayed	Immediate
2.	No	ENGAGE		Procrastinate	Act; allowing for reflection
3.	Other		Who INITIATES?	Joint	Self
4.	Yes, UNSOUGHT		AID or ADVICE used?	Self-sought	Not used
5.	OTHER		Who conceives of SOLUTION?	Joint	Self
6.	OTHER	IMPLEMENT		Joint	Self
7.	GIVES UP, BLAMES OTHERS, OR REACTS AGGRESSIVELY		PERSISTENCE	Seeks help	Alters the situation, or recognizes it as genuinely unsolvable.
8.	UNSUCCESSFUL	ACHIEVE SOLUTION		Delayed solution	Immediate solution
9.	NEGATIVE		SELF-EVALUATION OF OUTCOME	Mixed; or no strong evaluative reaction	Positive

SECTION II

COMPETENCE AND COPING: THEORY AND RESEARCH

COPING STYLES AND ACHIEVEMENT:
A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

The University of Texas at Austin

1981

COMPETENCE AND COPING: THEORY AND RESEARCH

Over the last century numerous psychologists and other persons interested in the human condition have sought to develop theories that explain competent behavior. It is this facet of human behavior that has proven one of the most difficult to understand, involving as it does the complexities of motives, emotional reaction patterns, and problem-solving skills that involve both intellect and personality. This chapter is a review of theories and research which aims at providing an integrative framework for describing and understanding healthy, competent behavior.

The Competency Model of Personality

In any recent textbook on personality one can find numerous theories of human functioning. There have been several attempts to organize and/or integrate these approaches (Maddi, 1976). While there are several possible basic models of personality, one very central model might be called the competency model. The basic principle common to personality theories of this type is the notion that persons are striving to attain some important final goals. That is, personality is based on innate and/or learned tendencies to achieve satisfying, effective ways of using one's human capabilities. The preliminaries of this type of approach to personality can be found in the work of Sigmund Freud and Carl Jung. Each of these men, as theoreticians and clinicians, saw the working of personality as the outcome of intrapsychic and psychosocial activities. However, the full development of these ideas are more clearly embodied in the work of Adler, Murray, White, Allport, and Sullivan. Indeed, each of these theorists built their theories around the competence model and specified areas of competence as well as some specific functions that contribute toward competence.

ANTECEDENTS OF COMPETENCY THEORY

While Freud's theory of personality concentrated on the basic biological instincts that governed personality, he offered through his clinical experience some suggestions for the competence model. For him, mental health consisted of the ability to love and to work effectively. Most of his life was dedicated to developing therapeutic procedures that would restore interrupted or crippled psychological growth. This overall shape of Freud's work clearly indicates his conviction that the organism is directed toward competency, and that it can be helped in this process.

Carl Jung also directed personality theory toward the issue of competence. In Psychological Types (1921), for example, he described four "functions" through which a person perceives and dealt with life: thinking, feeling (emotion), sensation, and intuition. In this, and many later writings, he gave both a theoretical rationale, and abundant illustrations drawn from case studies, world literature, and cultural anthropology, for the proposition that these four functions must each, and all, be developed and used, actively and in a balanced way, or the person would run into severe psychological difficulties, which would render him ineffective in daily life. Jung devoted most of his writing to elucidating the intra-psychic processes involved. Nevertheless, it is quite clear that he recognized that dealing with external reality is an indispensable aspect of life. Thus, his statement about developing the effective use of these functions, and the illustrations he gave, constitute an early statement that psychological maturity inherently involves and implies accurately perceptive, physically involved responses to life situations, with appropriate and engaged emotion, and with a wise capacity to relate the immediate situation to relevant past, present and future contexts. With even one of these four kinds of competence missing, or undeveloped, Jung foresaw that a person would develop serious problems in dealing with life.

As example of one-sided development and its consequences, he described the propensity of some intellectuals to overvalue thinking and undervalue feelings. Carried too far, this not only leads to undertrained and ultimately ungovernable emotional reactions; simultaneously, this "rebellion" of the denied emotional capacities disrupts effective handling of practical matters. The hyper-intellectual who descends into depression not only suffers subjectively; his depression also saps his enthusiasm and energy for work, his ability to engage in intimate personal relationships, or both (Jung, 1933). By such discussions, and by his evolving concept of life-span individuation as a process of coming to deal consciously, rationally and emotionally with both the inner and outer demands of life, Jung organized ideas which were taken over, elaborated and added to by subsequent psychologists, such as Maslow, in his discussion of self-realization. Both Freud and Jung identified processes that are important to the attainment of competence. Their work clearly provides a first step towards the creation of a competence model.

Foundations of Competency. For many personality theorists, it became increasingly clear that human beings strive toward improvement or "perfection." This, then, becomes the major motivating force in directing development and change. The first clear articulation of this position emerges in the work of Alfred Adler. Variations of his approach are evident in the writings of Harry Sullivan and Gordon Allport. Perhaps the most complete development of the competency approach was created by Robert White. White's definiton of effectance motivation, or the push to effectively deal with the surrounding world, emerged as the clearest conceptualization of striving for perfection. The work of each of these theorists will be reviewed in an effort to integrate their thinking into a more coherent theory of competence.

Adler. Alfred Adler was a part of the original inner circle of scholars and clinicians who worked with Freud. As Adler began to develop some of his ideas about superiority striving, he came into conflict with the more orthodox practitioners of psychoanalytic theory and eventually left the Vienna Psychoanalytic Society.

Adler shifted away from Freud's emphasis on sexuality as the primary determinant of personality development. He suggested that the "will to power," or striving for superiority, were the basis of unity and consistency of personality. By superiority, Adler meant the striving for mastery or competence rather than social distinction or a prominent position in society. He writes,

> I began to see clearly in every psychological phenomenon the striving for superiority. It runs parallel to physical growth and is an intrinsic necessity of life itself. It lies at the root of all solutions of life's problems and is manifested in the way in which we meet these problems. (Adler, 1931, p. 398)

This tendency is not just the automatic unfolding of potentialities; rather it is the active striving for perfection in one's exercise of these potentialities. Adler discussed the concept of fictional finalism, that is, an ideal that is conceived by the person as the ultimate state of being. He conceived this striving for superiority to be an innate tendency of the organism. He also suggested other means through which this tendency was produced. This included organ inferiority, feelings of inferiority, and consequent efforts at compensation. Adler argues that to be human was to be inferior. He pointed to the person who is born with specific kinds of physical limitations and, more generally, every child's dependence and helplessness at birth. The "driving force [to overcome this inadequacy is], the point from which originates and develops all the child's efforts to posit a goal for himself, from which he expects all comfort and safeguarding of his life for the future, and which causes him to enter a course which appears suitable for the achievement of this goal". (Ansbacher, H. & Ansbacher, R., 1956, p. 116) Another aspect of Adler's theory was his notion of the creative self, in that the person has an important role in the shaping and creating of his or her self.

Adler (1935) divided all the problems of life into three parts: "Problems of behavior toward others, problems of occupation, and problems of love." (p. 6) The problem of behavior toward others was paramount to Adler's theory of personality. He argued that the person must develop a strong social interest to lead a constructive life. He argues that social cooperation was necessary for the development of the individual.

> We have always to reckon with others, to adapt ourselves with others, and to interest ourselves in them. This problem is best solved by friendhsip, social feeling, and cooperation. (Ansbacher, H., & Ansbacher, R., 1956, p. 132)

In regard to occupation, Adler asserted that humankind must continually search for better use of material resources. He writes, "In every age, mankind has arrived at a certain level of solution [in the use of the environment], but it has always been necessary to strive for improvement and further accomplishments." (Ansbacher, H. and Ansbacher, R., 1956, p. 131) The final task of love is the working out of a realtionship between two people, Adler saw this as an important task for the betterment of society. In summary, Adler presents a model of personality in which striving for perfection is the central tendency and in which the crusial life problems are love, work, and social relations.

Sullivan. The interpersonal theory of Harry Stack Sullivan makes a significant contribution to the study of personality, and bears an equally important role in the development of a theory of competency. Sullivan, in the course of many years of intensive clinical work, was very dissatisfied with strictly intrapsychic viewpoints of personality and came to define psychiatry as "the study of processes that involve or go on between people." He wrote (1953),

> The field of psychiatry is the field of interpersonal relations, under any and all circumstances in which these relations exist ... a personality can never be isolated from the complex of interpersonal relations in which the person lives and has his being ..." (p. 4)

Within Sullivan's model, personality is not to be viewed as some type of intrapsychic configuration; rather, personality is "the relatively enduring pattern of recurrent interpersonal situations which characterize a human life " (Sullivan, 1953, p. 2); in short, how one behaves, overtly or covertly, in real or hypothetical interpersonal situations.

Sullivan, of course, dealt with psychopathology. However, he repeatedly emphasized continuity between normal and pathological behavior, seeing no qualitative difference. He tried not only to describe pathological syndromes, but he attempted to elucidate a comprehensive theory of personality development. This theory belongs in any effort to trace the history of competency theory, as will be briefly illustrated.

While Sullivan could describe psychopathology as distortions of interpersonal behavior, he still had to postulate certain internal processes to account for the development of individual patterns of interaction. First of all, Sullivan assumed certain innate tensions or needs. These included physical needs such as food and sleep, and sex, as well as a need for contact. He also, like Freud, posited certain oral needs, such as the need to suck. Another important need or tension in Sullivan's system was the "power motive." This concept, somewhat similar to Adler's striving for superiority, and White's effectance motivation, refers to a "motive toward the manifestation of power or ability." (Sullivan, 1947, p. 6). The infant is born with a need to grow, to exercise its capacities, to develop maximally. The basic direction of the organism is forward.

As a result of these tensions, there are two end states which act as the principal motivation of human interpersonal behavior. Sullivan refers to these as "satisfactions" and "security." Satisfactions refer to the needs of bodily organization (e.g., food, sleep, sex), analogous to the "lower" needs of Maslow's heirarchy (1962). States of hunger, fatigue, and lust, as well as loneliness, are included by Sullivan in this category. They lead to certain behaviors which might satisfy these needs.

While the "satisfactions" are innate, pursuit of "security" is much more culturally determined and has greater implications for the development of competence. The concept of anxiety is crucial to this part of Sullivan's theory. Sullivan argues that the infant is born with a capacity to experience fear and to "empathize" with negative emotional disturbances in others, particularly the mother. This capacity to experience anxiety as a very unpleasant, potentially incapacitating, emotional state, is a powerful force in determining interpersonal behavior. Disapproval from significant others can lead to the experience of this kind of anxiety. Behaviors which become associated with this anxiety are, then, avoided or repressed. Thus, maintenance of security (avoidance of anxiety) is a powerful, culturally or interpersonally controlled, determinant of behavior. This part of his theory owes much to Freud's formulation of the place of anxiety aroused by parents, and the mechanisms children develop to "control" the anxiety.

While the basic drive of the organism is forward (i.e., the power, motive), this need for security acts as a critical factor in the development from infancy through adulthood. Of great importance to competency is his well-developed notion that each stage or phase of development requires learning of certain skills, and satisfactory resolution of certain critical security issues. Sullivan (1953) states, "If experience is definitely unsuited to providing competence for living with others, at this particular level of development, the probabilities of future adequate and appropriate interpersonal relations are definitely and specifically reduced. The reduction of probability is specifically related to the forms of competence which are customarily developed under favorable circumstances in the course of this particular stage." (p. 371)

The pattern of development, through resolution of security issues, results in an individual's "self-dynamics," a self-concept constructed through a system of reward and punishment (felt anxiety), which determines the individual's personality, or pattern of interpersonal behavior. (Compare Adler's "life script.") It is also interesting that Sullivan talks about "foresight." He says (1947) that "One of the great elements in the feeling of security is the conviction that one has power enough in an interpersonal situation: One can feel 'in control' of the situation." (p. 33)

Sullivan's "orientation in living" still serves as a competency-based definition of mental health:

> One is oriented in living to the extent to which one has formulated, or can easily be led to formulate (or has insight into), data of the following types: the integrating tendencies (needs) which customarily characterize one's interpersonal relations; the circumstances appropriate to their satisfaction and relatively anxiety-free discharge; and the more or less remote goals for the approximation of which one will forego intercurrent opportunities for satisfaction or the enhancement of one's prestige." (Sullivan, 1953, p. 243)

Allport. Another theorist who developed ideas about the development of personality was Gordon Allport. Allport's model was particularly concerned about self or "proprium" functioning. In his model he identified two aspects of personality, self-preservation and self-functioning aspects. He also designated the content of healthy functioning, and the development of various components of the self.

One important distinction that Allport made was between the biological and psychological aspects of human functioning. Allport acknowledged that the human organism has biological needs and recognized that they needed satisfaction. He called this opportunistic functioning. Similar to other conceptions of these needs, he stated that these needs result in a tension which is reduced through the attainment of food, or water, or other appropriate goals. Primarily, opportunistic functions were reactive; that is, a response was produced in reaction to some environmental or biological pressure. The other aspect of human functioning was self or propriate functioning. This was psychological in nature and distinct from physical survival. Thus, effective propriate functioning was separate from biological survival. A person could lead a meaningful life regardless of his or her physical well-being. In contrast to opportunistic functioning, self-functioning is active and seeks to attain goals and find stimulation, rather than simply react to the environment.

The major features of Allport's model are his specifications of the content of self. These include the sense of body, self-identity, self-esteem, self-extension, rational coping, self-image, and propriate striving. The sense of body is the person's kinesthetic and proprioceptic experiencing of his or her body. This is one of several factors that determines one's life decisions. Self-identity, on the other hand, is the set of ideas one uses to define oneself. The ideas are the most important defining characteristics of oneself, including one's physical appearance, skills, talents, career, etc. Closely associated with the sense of oneself is the worthwhileness that one experiences, that is, self-esteem. How you live is determined in part from how you value certain types of activities of the self in the world.

Through the concept of self-extension, Allport gave recognition to the fact that people, places and things outside of the person may be defined as central to the concerns of the self. That is, the self becomes extended to things external to the person and values these things so much that their fate may cause feelings of pride or shame, as if done to the self. For example, if a person's children are an important part of one's conception of self, their success or failure affects one's self image and sense of worth.

Rational coping was also defined as an important part of self. Allport reasoned that how a person deals with problems and tasks is central to the self. How a person defines oneself in terms of coping was thought to be related to the kind of life that a person leads. He was content to leave this concept in this generally stated form.

The propriate functions do not operate independently, but are interrelated. This functioning of the self is psychological, future oriented, and active. The self is a phenomenological entity that actively seeks stimulation and fulfillment. By future orientation, Allport is stating that the self strives to bring about states that have no precedent in the person. For example, aspirations lead the person to attain new goals and activities rather than focus solely on the continuance of old habits or ways of acting. Allport clearly believes that the self seeks new ways of being.

White. Without question, the most influential psychologist among the competence model theorists is Robert White. In a series of articles over the last two decades, White has specified a new conception of how personality operates in persons.(White, 1959; 1960; 1974) Perhaps more than any other theorist, White sought to overcome the inadequacies he detected in the traditional psychodynamic model. In his now classic paper, Motivation Reconsidered: The Concept of Competence, White systematically drew on the available empirical evidence that instinct theory had failed to capture, about the functioning of people.

In his review of the literature, White documented many instances in which the notions of play, exploration, curiosity, and mastery seem to have been the basic, motivating forces in behavior. Citing examples from studies with animals, White noted that exploration seems to be intrinsic to the behavior of rats, monkeys, and even people. Montgomary (1954) reported that rats will learn to take one arm of a maze that leads only to an area in which there is an additional maze. Similarly, monkeys solved a visual discrimination problem simply for a chance to open a window to peer into a lab, to see the comings and goings. These studies suggested that exploration and novelty are sufficient to motivate organisms to act in their world, and to attain new skills. Elsewhere, studies indicated that activity and manipulation could also function to increase learning.(Harlow, 1953; Kagan & Berkun, 1954)

White reviewed the observation reports of Jean Piaget (1952) as evidence that even infants actively explore and seek to master the world around them. He noted that many other theorists, including Hebb, Murray, and Maslow, all argued that humans act in ways to increase stimulation rather than always to decrease tension. This evidence from both animal and human studies indicated to him that consummation of some organic drive is often not necessary for the organism to engage in a variety of behaviors.

In another paper, presented at the Nebraska Symposium on Motivation in 1960, White went on to explore human development and the Freudian model. In a brilliant meshing of evidence from Gesell and Piaget, he argues that much of what children do cannot be attributed to libidinal energy. As an example, White reviewed the activities of infants in their first year of life. He acknowledged that while much of the child's activities center around feeding, the classical oral activity, many activities seem far removed. He noted that during the first year, the child's waking hours for play increase from 1/2 hour to almost six hours by the age of one. These waking hours included a variety of activities. In some cases, merely visual exploration occurs; but halfway through the year comes what Gesell called the "everyday of manipulation" (1934), when grasping is an eager and intense business. White also recounted Piaget's findings concerning the infant's development of a variety of sensory-motor activities. In addition to the physical play there is also social play. White noted that while some social interaction may be influenced by oral pleasures, "There are other moments of social interaction that don't seem to be mingled with basic drives. If we watch the child happily passing objects back and forth with another person, playing peek-a-boo, hiding behind chairs ... it looks as if there were a good many quite different ways to have fun." (White, 1960, p. 112) White suggested that much of this activity must be due simply to the young child's job at being able to do something interesting with the environment. In concluding this discussion White (1960) stated:

> We lose rather than gain, in my opinion, if we consider the child's undisrupted play, six hours a day, to be a continuous expression of libidinal energy, a continuous preoccupation with the family drama, as if there could be no intrinsic interest in the properties of the external world and a means for coming to terms with it." (p. 113)

He argues that while oral drives and other libidinal forces play a role in development they are insufficient to account for all behavior.

With the recognition of the incompleteness of psychoanalytic theory, he proposed a model of competence as a more general theory of personality. He argued that activities such as grasping, exploring, crawling, walking, attention and perception, language and thinking, manipulating and changing the surroundings, were motivated by "an intrinsic need to deal with the environment." White again cited the work of Piaget who documented the activities of his children as they engaged their environment. Piaget cited the example of Laurent at play in his crib, playing with a chain and rattles to see what they can do. White (1959) concluded,

> In all such examples it is clear that the child or animal is by no means at the mercy of transient stimulus fields. He selects for continuous treatment those aspects of his environment which he finds it possible to affect in some way. His behavior is selective, directed, persistent - in short, motivated." (p. 320)

As to the question of what sort of goal this behavior is directed toward. White suggested that the person may be seeking a pleasurable level of stimulation, or may have a need for activity. One might also suggest, as Adler and Sullivan have done, the goal of achieving knowledge, or the need for exploration, or even the sense of mastery, power or control. Rather than select anyone of these goals, White suggested that the person is at work "developing an effective familarity with his environment." This involves discovering how the world affects the person and how the person affects the world. White (1959) noted, " ... to the extent that these results are preserved by learning, they [persons] build up an increased competence in dealing with the environment." (p. 321)

The motivational aspect of competence is described in terms of effectance. In general, this is one's desire to have an effect on the environment. White describes this as a "neurogenic" drive, in which energy is created simply by the living cells which make up the nervous system. Due to the continual transaction of the person affecting the environment, the vice versa, it is difficult to talk about satisfaction; White prefers to use a "feeling of efficacy" when attempting to describe the affective and subjective side of effectance. In describing this motivation White (1959) stated:

> The urge toward competence is inferred specifically from behavior that shows a lasting focalization and that has the characteristics of exploration and experimentation, a kind of variation within the focus." (p. 323)

Illustrative examples are the exploratory behaviors of animals and children. Initially this motivation is undifferentiated, but as the child develops the various motives of cognizance, construction, mastery, and achievement emerge.

The theory of behavioral development set forth by Robert White gives the striving for competence a central place in human functioning.

The goal of competence is viewed as an intrinsic aspect of the organism and results in the subjective feelings of a "sense of efficacy." The features of this theory provide a substantial basis for the further development of a competence model of personality.

Integrative Themes in the Competence Model

The work from Freud through White provides a stable foundation for the consideration of the major features of a competence model. The central basis of the competence model is striving for self-actualization through personally and socially effective behavior. This notion is the foundation of the work of Jung, Adler, Sullivan, Allport, and White. The basis for this striving is somewhat different in each of these theories, but there is in each theory some suggestion, either explicit or implicit, that this type of functioning is innate or intrinsic to living organisms. Jung, Adler, and White most clearly state this position; Sullivan and Allport appear generally to agree with it. Beyond this, each theorist suggests other factors that serve to stimulate competency building. Adler postulates various forms and causes of inferiority states and feelings, as a basis for developing at least some competencies as a method of compensation. Somewhat similar are Sullivan's ideas concerning the attainment of security and the avoidance of anxiety. Allport emphasizes many activities of the self that contribute to the development of the person's competence.

Another important aspect of competency models is the identification of the specific goals of the intrinsic striving. While each theorist emphasizes particular goals, there appear to be three broad areas in which persons must achieve competence. These are: self, other, and the world. Of these theorists, Allport is the one who most clearly emphasizes the importance of dealing competently with self. He notes that healthy behavior includes specific and enduring extensions of the self, self acceptance, a unifying philosophy of life, and the ability to realistically assess the self through insight and humor. The area of interpersonal relations (others) is stressed by all of the theorists. Freud, Jung, Sullivan, and Adler especially put developing and maintaining social and interpersonal concerns in the center of their conception of the competent life style. Interpersonal competence means getting along well in intimate personal relationships, as well as in the larger societal realms. Dealing with the world is the final, broad task area. White and Adler most clearly discuss this area. Attaining competence in the world means dealing with the physical environment and with work. This includes the young child's learning to walk and the older person's learning to achieve competence in work. It would appear that the competent individual would develop mature abilities in managing each of these three areas of life: self, others, and the world.

COPING THEORY

The competency approach to personality emphasizes persons' attempt to improve, increase and develop their capabilities in meeting the challenges of living. It has provided much needed clarification of the basic course of human development and it has provided some specification of the task areas: self, others, and the world.

It is necessary to understand the details of how people develop competencies in these areas. Perhaps the central question is, "What processes do people go through in managing problems that arise related to the self, others, or the world?"

To explore this problem it is worthwhile to consider a tradition of research that has centered around the concept of coping. Perhaps the earliest roots of the study of coping behavior rest in the experiences of psychologists who treated combat-related psychopathological disturbances in World War II. The central question that emerged from these experiences was, "What are the types of resources, external or internal, that contribute to a person's ability to manage stress?" Attempts to answer this question resulted in the study of normal people. That is, two traditions of research emerged, one focusing on stress management itself, and the other aimed at understanding just what constitutes healthy functioning.

While there is certainly some overlap, and some common problems, these two research traditions have proceeded relatively independently of each other. If one were simply to characterize these different types of work one could say that the stress management research has focused on how people cope with major life crises while the study of healthy functioning has been more concerned with everyday stresses and strains. Only recently have there been attempts to merge these two paths of work (Folkman and Lazarus, 1980). The present chapter will review both the stress management and healthy functioning lines of work with an effort to merge these bodies of work into a coherent theoretical model.

Management of Stress

There have been numerous studies and writings about stress management; however, the most relevant of these writings in regard to a broad theory of coping are those of Richard Lazarus and Aaron Antonovsky. Each of these theorists has attempted to specify the broad principles related to the process of coping with difficult and challenging situations.

Lazarus. The theorist who has pursued the relationship of stress and coping most vigorously is Richard Lazarus. Over the last thirty years, Lazarus and his associates have continued to develop a theoretical model of coping in relation to stress. In this review, only the most recent version of Lazarus' theory will be presented. One of the most recent changes in the Lazarus work is his increasing emphasis on everyday stressful events rather than simply the study of extreme types of stress.

(Folkman and Lazarus, 1980) It is in this work that the principles of his cognitive-phenomenological model are most clearly displayed.

In his most recent analysis of the study of coping, Lazarus (1978) presents the major set of principles of his present theoretical focus. First, he argues that the study of coping needs to take place outside of the laboratory. He notes that the laboratory can provide only a limited knowledge of the ways in which coping occurs in everyday affairs. Because the coping process occurs over time, short-term laboratory experiments can tell us little about long-range adaptive processes. Furthermore, both for practical and ethical reasons, major stress situations cannot be engineered in the laboratory. Lastly, Lazarus observes, "much of what we take to be precise control over measurement and confounding variables in illusion, particularly when one's concerns are psychodynamic or sociodynamic." (Lazarus, 1978, p. 10) He argues that many factors in the experimental session are confounded with the laboratory context, experimenters, etc., which all too often go unacknowledged and unmeasured. In consideration of these criticisms of the laboratory, Lazarus' own work has begun to focus on coping in the everyday world. This involves studying the kinds of events that cause stress everyday, and examining over time the ways people manage these stresses.

The major theoretical tenet of the Lazarus model is the focus on transaction and process. (Coyne & Lazarus, 1980) He (1978) notes:

> Psychological stress (as well as positive experiences) resides neither in the situation nor the person, though it depends on them both. It arises from the adaptational relationship as it is appraised by the person. Such a relationship is best termed a transaction. (p. 10-11)

In focusing on transaction, these researchers emphasize not just the effects that persons have on environments or environments on persons, but their reciprocal effects. This focus results in an emphasis on "process or dynamics, that is, on what is actually happening in any given stressful encounter or how what is happening changes." (Lazarus, 1978, p. 13) Both the actual interchange between the person and the environment and the flow or transformation of the interchange over time are important to understanding coping. This emphasis on the transactional nature of coping has prompted the Lazarus group to study the process of coping over time in an attempt to see how people continually resolve problems and how this occurs across time.

Another feature of the Lazarus model is a consideration of the levels of analysis. In this regard, Lazarus notes that stress can often be described at a sociological, psychological, or physiological level. His main point is that what could be called stress at a sociological level may not be stress at the psychological or physiological level, or it may manifest itself differently at these levels. For example, a divorce represents stress at the sociological level, but its impact on family members at the psychological and psychological level may be quite different. In one member, the perceived stress may be greater than in the other; one person may develop ulcers while the other seems unchanged physically. Lazarus emphasizes that confusing these levels of analysis or failing to consider these differences results in confusing rather than clarifying our understanding of stress.

On the basis of these principles, particularly of the transactional considerations, Lazarus recommends a different way to approach the measurement of coping, which he calls the ipsative-normative method. This combines the best features of both the idiographic and nomothetic approaches. Lazarus (Lazarus, 1978; Coyne & Lazarus, 1980) argues that what is needed is the in-depth study of persons across occasions. He suggests that in order to assess effective versus ineffective coping, "We must be in a position to determine whether any given group of persons (defined by sex, age, personality or sociocultural variables) cope with a variety of stressful encounters in some consistent way (i.e., with some consistent pattern), or instead use effectual or ineffectual patterns in certain types of encounters but not in others." (Lazarus, 1978, p. 24) Only by examining these intraindividual patterns across differing situations can these questions be answered.

In addition to these general principles, Lazarus has made some changes in his theory of coping. The major focus of his theory has always been on the appraisal processes. (Lazarus, 1966) We find these concepts have been sharpened and differentiated in his most recent presentations. He postulates two main types of appraisal, primary and secondary. Primary appraisal is the process of evaluating the significance of a transaction for one's well-being. It is asking the question, "Am I okay or in trouble?" Judgments about the outcome of the transaction can either be (1) irrelevant, (2) benign-positive, or (3) stressful. If judged stressful, the event may be termed (1) harm/loss, the injury or damage has already been done, as in bereavement, injury, or loss of self-esteem, (2) threat, the same types of events, but anticipated rather than already having occurred, (3) challenge, opportunity for growth, mastery, or gain. Lazarus notes that, at present, we still know little about what causes events to be judged threatening, or challenging, or about the consequences of various types of appraisal.

In defining stress, Lazarus notes that it occurs when demands tax or exceed the available resources as appraised by the person. Thus, "Stress is neither an environmental stimulus, a characteristic of the system (e.g., a person), or a response, but is a relational concept, a balance between demands and the power to deal with them without unreasonable or destructive costs, ..." (Lazarus, 1978, p. 26) Appraisal is the key process in determining the quality of the emotional response to an event.

Secondary appraisal refers to "the person's ongoing judgments concerning coping resources, options, and restraints." (Coyne & Lazarus, 1980, p. 14-15) This appraisal process seeks to answer the question, "What can I do about the situation?"

The secondary appraisal process has recently been receiving more attention by Lazarus and his colleagues.(Folkman & Lazarus, 1980) The person must assess his/her resources, beliefs, and the likelihood of success. This secondary appraisal process is an important factor in the person's actual behavior in response to the stressful event. In addition to the above appraisal activities, persons are always involved in reassessing the nature of the situation. That is, once a judgment is made about the nature of the event as harmful or threatening, this can be revised or changed on the basis of further information or experience. This reappraisal process emphasizes the ongoing nature of appraisal as a continuous activity rather than some permanent or final judgment.

Coping. Beyond the appraisal processes, the other major feature of Lazarus' theory is the notion of coping. He writes (1978), "What makes the major difference in adaptational outcome is coping, and so we should give special attention to it in our research on human functioning." (pp. 31-32) Lazarus asserts that there are two basic functions of coping: problem solving and emotion regulation. While coping includes the possibility of making changes in the environment or self to eliminate the problem, Lazarus argues that often times changes cannot be made. The person then faces the difficult task of successfully eliminating or reducing the emotional distress caused by the events. These two functions may work together so that the reduction of distress makes problem-solving more efficient. However, they may cause problems and lead to maladaptation. If the person attempts to reduce stress by denying, intellectualizing, or taking drugs (e.g., alcohol, pain killers, or tranquillizers), this may reduce the stress in the short run, but inhibit action in the environment which is necessary to produce a positive adaptational outcome. Nevertheless, Lazarus does believe that emotion regulation is an important component, particularly when the person realistically cannot alter the situation. Lazarus is critical of writers who suggest that emotion regulation is always a negative or pathological conditon.

Another major component of the Lazarus work is the recent attempt at providing a taxonomy of coping. Lazarus and Launier (1978) discuss the lack of any agreed-upon theory of coping as a major obstacle in the presentation of a coherent description framework for coping. Nonetheless, these authors present a possible organizational framework. Lazarus and Launier (1978) incorporate all of the major distinctions of their theory into this classification scheme. They note that coping may be directed toward the past-present or toward the future. Harm-loss type situations are past or present; threats or challenges are usually future-oriented. The focus of coping may be on the self or the environment. These dimensions result in four major quadrants of coping: Past-present with self, past-present with the environment; future with self, and future with the environment. Within each of these quadrants, the two coping functions of alterning the troubled transaction (problem-solving) or regulating the emotion (palliation) are possible. For each of these functions there are four possible modes: Information seeking, direct action, inhibition of action, or intra-phychic activity.

Information seeking involves examining the situation for possible knowledge for making appraisals, decisions, or action. This mode can also serve a palliative function by looking for information to support rationalization of a past decision. Direct action includes those instrumental acts designed to solve a problem such as studying for an upcoming test, but it also includes actions such as engaging in muscle relaxation to alleviate painful emotions. The inhibition of action is also a mode of coping and simply refers to the withholding of a particular response. The mode of intra-psychic coping refers to those primarily cognitive activities of a person to regulate emotions either to facilitate action or merely for the reduction of distress. This may occur through self reassurance or reinterpretation of past events or in many other ways. In all, the taxonomy provides a way of classifying and thinking about the relevant dimensions of coping.

In addition to these theoretical premises, Lazarus and his associates have also discussed problems in the assessment of coping. They have especially noted the problem of moving from trait-type measurement models to process-type models. This goes back to their ipsative-normative approach to the study of persons. They also discuss problems with the adequacy of self-report data, suggesting that such data need to be compared with other types of reports. In summary, the Lazarus model of coping represents a major theoretical tradition which provides some important insights and suggestions for the continued study of coping.

Antonovsky. From the broad perspective of what contributes to the general healthiness of persons, Antonovsky (1979) also outlines a theory of coping. Similar to Lazarus, Antonovsky is concerned with stress situations, with particular emphasis on what resources people have which allow them to maintain good health. Like many authors, Antonovsky argues that the crucial question is not "What causes illness?" but rather "Why do people stay healthy?" He suggests that with the number of possible factors that can cause disease or injury it is remarkable that people have some measure of healthiness.

In pursuit of an account of healthiness, Antonovsky develops the idea of generalized resistance resources. He argues that one of the most important goals of maintaining health is the effective management of tension brought on by stressors in the environment. Thus, he defines generalized resistant resources (GRR) "as any characteristic of the person, the group, or the environment that can facilitate effective tension management?" (Antonovsky, 1979, p. 99) He suggests that there are eight broad classes of GRRs: Physical, biochemical, artifactual-material, cognitive, emotional, valuative-attitudinal, interpersonal-relational, and macrosocial. In regard to the physical and biochemical GRRs, Antonovsky considers those biological features of the body which attempt to combat disease. He also discusses the placticity of humans as a key source of coping with environmental stress. Among the material resources that are considered are money, shelter, clothing, and food -- all of which serve to help maintain good health. Antonovsky also discusses intelligence and ego identity as cognitive and emotional resources that contribute to effective stress management. Another area of resources, valuative-attitudinal, has to do directly with "coping." He discusses the difficulties in defining this concept, noting, "Many writers ... view coping as a behavior pattern of dealing with a problem. Whatever one does, then, becomes a coping pattern. Anything, then, can be said to be coping -- a view that hardly clarifies the concept." (Antonovsky, 1979, p. 111) He defines (1979) a coping strategy "as an overall plan of action for overcoming stressors." (p. 112)

He suggests that rationality, flexibility and foresightedness are important dimensions of a coping strategy. To the extent that a person is high on these variables, the person will more effectively manage stress. Rationality is the extent to which the person accurately identifies the nature of events. The failure to identify an event as threatening could prove disastrous and the false identification of an event as threatening when it is not, can impede growth and exploration. Another feature of a coping strategy is the degree of flexibility. Often events change rather rapidly and new factors must be taken into account. Increased flexibility allows for increased responsivity to the environment. Finally, the extent of foresightedness, anticipation of responses from the environment, is also critical to the success of the strategy. In defining these dimensions of coping, Antonovsky provides a useful theoretical model of major elements in a successful coping strategy.

Another resource is the interpersonal or social support that a person has available. Data from many sources indicate that persons who are most firmly embedded in their social environment are most resistant to stress. Antonovsky suggests that the degree of commitment one has to family, friends and community plays a major role in dealing with tension. The last major category of resources is called macrosocial. These are the cultural rituals and patterns of behavior that provide solutions to some of the possible stressful events of life.

In addition to these resistance resources, Antonovsky also presents another concept that is of central importance to his theory of stress management. This concept is a "sense of coherence" which he defines as "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability things will work out as well as can reasonably be expected." (Antonovsky, 1979, p. 123) Antonovsky argues that it is this sense of coherence that plays a vital role in the person's ability to effectively employ available resources.

Perhaps the most important contribution of Antonovsky's theory is the integration of coping within the larger framework of general resistance-resources. Often the idea of "coping" has been used as the general category of how a person responds to stress. Antonovsky successfully demonstrates that coping is best viewed as only one of several resources that a person brings to bear on a stressful situation. This more limited notion of coping is more useful in the further theoretical and empirical clarification of how people manage stress situations.

Healthy Functioning

Another theme of studies of coping is healthy functioning. Among the pioneers in this work have been Henry Murray, George Coelho, Lois Murphy, Robert Havighurst, Norma Haan, and Robert Peck. White's, Coelho's, and Hamburg's studies of college students provide an exciting glimpse into the daily operation of people's lives. In her longitudinal study of children, Lois Murphy has presented a detailed picture of day-to-day growth and change in children's ways of meeting life's stresses, strains, and challenges. In addition to these pioneers, Norma Haan and Robert Peck have also contributed to the clarification of the coping process. Following is a review of each of these authors' work.

White. In addition to his theory of competence, White also develops some ideas about coping or strategies of adaptation. White offers some clarification of the concepts of coping, defense, and mastery. He also asserts that the essential ingredients of adaptation are (1) obtaining adequate information about the environment, (2) maintaining satisfactory internal conditions both for action and for processing information, and (3) maintaining autonomy or freedom of movement, and the flexible use of resources. These concepts provide some further clarification of the adaptive process.

In defining the concept of coping, White notes the type of situations chosen for the study of coping behavior. These situations usually involve major disruptive events such as serious crippling sickness, death, financial disaster and other types of distress. On the other hand, many less drastic situations, such as entering the first grade or college, moving to a new place, or facing other developmental tasks, also pose significant coping problems for the person. White suggests that the term "coping" be restricted to "A fairly drastic change or problem that defies familiar ways of behavior, requires production of new behavior, and very likely gives rise to uncomfortable affects like anxiety, despair, guilt, shame, or grief, the relief of which forms part of the needed adaptation." (White, 1976, pp. 18-19) Thus, coping refers to adaptation under relatively difficult conditions.

White also seeks to limit the concept of mastery. He notes that this concept has been applied to many different circumstances but suggests limiting the use of the term to those problems that have a "certain cognitive or manipulation complexity, but which at the same time are not heavily freighted with anxiety." (White, 1976, p. 18) In those instances in which danger or anxiety are of central importance, White suggests the use of "defense." He argues against attempts to suggest that all personality development is the resolution of instinctual cravings through defensive mechanisms as has been suggested by some psychoanalytic theorists.

For White, the central concept is adaptation. He notes that all behavior can be viewed as an attempt at adaptation. The concepts of coping, mastery and defense are specific types of adaptive processes that respond to specific types of situations. White (1976) also challenges the assumption underlying much psychological literature "that any delay, avoidance, retreat, or cognitive distortion of reality is in the end a reprehensible piece of cowardice." (p. 20) He asserts that there are many situations that can only be met by compromise or even resignation, that is, sometimes delay or avoidance is not only adaptive but necessary. He argues that there are many cases when tactics of delay or some distortion may facilitate the ultimate adaptation. He suggests that adaptation "does not mean either a total triumph over the environment or total surrender to it, but rather a striving toward acceptable compromise." (White, 1976, p. 22) Despite this emphasis or compromise, White continues to view the organism in terms of growth.

> Living creatures, in short, will constantly strive for adaptive compromise that not only preserves them as they are, but also permits them to grow, to increase both their size and their autonomy." (White, 1976, p. 24)

White continues to view adaptation as a process of continual striving for greater autonomy and competence.

Another important feature of White's theory are the components of the adaptive process: Information, internal organization and autonomy. To be adaptive the organism must successfully engage in each of these activities. Securing adequate information is obviously necessary to successful living. The organism must seek and maintain an optimal level of information from the environment. Either too much or too little could interfere with appropriate behavior. However, information alone is not sufficient if the internal organization of the system is too far out of balance; thus, the organism must engage in activities that maintain balance in this area as well. The person must strive for a comfortable sense of well being as well as to maintain physiological integrity. Any degree of imbalance, through anxiety or physical injury, lowers the organism's tolerance and success in the adaptive encounters. Finally, the organism must also keep open alternative paths of action for flexible and autonomous movement. Getting trapped in a situation without alternate courses of action can result in adaptive failure. Failure to maintain this autonomy may result in inability to engage certain problems or situations that provide a chance of escape or resolution. In summary, White's description of adaptive behavior involves the simultaneous management of information, internal organization and autonomy.

Murphy. Lois Murphy's study of the growth and development of children in Topeka, Kansas represents a major theoretical and empirical attempt to give some shape and form to the study of an independent ego. In her book The Widening World of Childhood, Murphy presents detailed records of children's attempt to cope with and master the world around them as well as themselves. She works out the details of the notion of "coping." She comments (1962), "Although the term 'coping' has long been used, it has merely crept in without being noticed and has not been dignified by systematic discussion; ..." (p. 6) Murphy gives "coping" a theoretical meaning, providing data to clearly illustrate her sense of the term. It is difficult to summarize Murphy's work because to do so necessitates leaving out so many of the beautifully detailed descriptions of the children whose struggles and successes enliven our understanding.

Murphy's work emerges out of the Freudian or psychoanalytic model of personality. Like several others in this tradition (e.g., White, Hartmann), she begins to explore the idea of independent ego energies. That is, rather than assuming that the child is propelled solely by libidinal energies, it is postulated that the ego has its own sources of energy. This motivating force is the striving for mastery.

> The 'ego' is not only a fort protecting the self from instincts, i.e., a center of defense mechanisms; it is ... a center of impulses to mastery, to respond to and use the environment constructively, ..." (Murphy, 1962, p. 283)

The ego retains its function of defense, as suggested by Freud, but to this function Murphy adds the possibility that the ego can act in non-defensive or constructive ways. This type of functioning she called "coping." Murphy (1962) states that coping is "What we see when children confront new situations and challenges calling for responses not previously crystallized?" (p. 6) Habitual and innate responses are not considered as a part of coping. She also distinguishes coping from adaptation, suggesting that coping is the process, and adaptation is the outcome or result. Two types of coping are distinguished: "Coping I is the capacity to cope with opportunities, challenges, frustrations, threats in the environment; and Coping II, [is] maintenance of internal integration - that is, the capacity to manage one's relation to the environment so as to maintain integrated functioning (free from marked tenseness, unmanageable anxiety, loss of motor coordination, deterioration of speech, disorganization of thought processes, and so on." (Murphy & Moriarty, 1976, p. 117). In summary, the major function of the ego is to develop effective ways of dealing with the environment. This includes the child's developing ability to gratify his/her needs and to manage tension.

Murphy's method of study is to provide detailed observational records of children in a variety of challenging or threatening situations. Her method is clearly idiographic resulting in a voluminous amount of data. Some of the situations Murphy studies are normative, such as observations of the children at play or at a party. Other situations, such as children coping with a serious illness or death of a parent, are more specific to individual children. In each case, she provides an account of the ways children manage stress and/or master the situation. From these accounts she identifies the major features of the coping process. These include the speicification of the (1) phases of coping, (2) characteristics of situations that result in coping, (3) development of coping, (4) styles of coping, and finally, a further clarification of the nature of coping.

The phases of coping are very straight forward. When the child finds him/herself in a challenging or threatening situation, the child attempts some initial kind of coping action. This may involve a variety of different responses ranging from attempts to master the situation to defensive actions aimed at reducing stimulation of anxiety. The result of these actions may be success, failure, or perhaps simple postponement. In those instances in which the child does not succeed at resolving the situation, he/she must call on additional or secondary coping strategies. Murphy notes that child's backup procedures are as important as the initial efforts, since often times situations are not immediately resolved. Here she notes that the effectual child will persist and flexibly manage his/her additional resources in an attempt to meet the demands of the situation. The child who is lacking in additional resources or who fails to change strategies will sometimes be immobilized or adopt defensive tactics to reduce the overwhelming situation.

Situations that elicit coping behavior were found to have one or more of the following characteristics: (1) gratification, (2) challenge, (3) threat, (4) frustration. Situations that offer gratification or challenges are eagerly approched by the child, if there are no obstacles in the way. Situations that present frustration or threat necessitate that the child attempt to reduce or remove the tension-arousing factors. This may include withdrawal from the situation, followed by a gradual retaking of the abandoned ground. The child may, alternatively, quickly seize the situation and aggressively conquer the problems. The possibilities for coping are enormous, as Murphy describes the numerous ways children manage their worlds.

In describing the development of coping, Murphy integrates this aspect of growth within the larger context of development. She reviews the infant's basic functions, including development of a feeling of familiarity with the caretaker and environment, motivation to satisfy needs, and impulses to explore and manipulate the environment. The important place of ego is in the coordination and organization of all these activities. Murphy notes that without coordination development cannot occur. She also notes (1962), "there are individual differences at every point, however, which qualify the pace, interaction, balance and resultants of these processes."(p. 289). It is also emphasized that "even at birth the baby is not only an organism which strives for an equilibrium, or which fits into environment, he is an active, self-propelling, creative being, able to stimulate others to initiate changes in the environment from the time he arrives in the world." (Murphy, 1962, pp. 252-293)

From this perspective the major tasks of infancy are (1) managing the various basic bodily functions, (2) dealing with stimulation, (3) coping with the challenges of various developmental crises, e.g., weaning, (4) mastering special events such as trauma, illness or accidnts, (5) becoming a member of the culture and dealing with all of the aspects of relationships with peers and parents. Development thus involves not only the role of drives but also the interaction effect of drives with cognitive and motor development. Murphy charts a course of development that indicates the interaction between libidinal drives and the autonomous ego functions. She notes that after the drives are satisfied the ego function takes over. For example, after the child is fed he/she will often explore the world through looking, touching and tasting. Murphy discusses the many tasks and challenges that the child faces in the development of coping.

Another important feature of Murphy's work is her attempt to outline the determinants of coping style, and to specify the dimensions of style. The major determinants of style are (1) sensory sensitivity, (2) autonomic reactivity, (3) level of drive, and (4) developmental balance. She suggests four major groupings. Children with low sensory sensitivity, autonomic reactivity and drive, and with good developmental balance will function smoothly in the environment to obtain gratification and maintain control. By contrast, children with high sensitivity, reactivity and drive, and good developmental balance will make active, vivid, quick contact with opportunities, maximize the use of them with a wider range of coping techniques, and show evidence of a higher level of gratification." (Murphy, 1962, p. 340) These children will have more conflictual encounters with the environment; however, the adaptive resources of these children will usually result in success. When there is high drive and sensitivity with developmental imbalance there is greater likelihood of unpleasant encounters with the environment. These children may have greater problems obtaining gratification. The children who have the greatest difficulty coping are those with high sensitivity, high drive, high reactivity, with slow recovery and developmental imbalance. These children may have difficulty in controlling the impact of input from the environment and may be prone to disappointment. These examples illustrate the various factors that are important determinants of a child's adaptive capacity.

Another major dimension of coping is activity-passivity. Murphy's major contribution here is to demonstrate that children are neither active nor passive in all aspects of life, but rather that there are several variables on which the child can exhibit different activity levels. She notes that activity-passivity can apply to (1) energy level and constitutional activity, (2) need for rest, (3) receptivity, (4) passivity in the service of cognitive mastery, (5) passivity imposed by cultural patterns, (6) passivity imposed by medical problems. Murphy (1962) concludes "Active and passive tendencies do not seem to be mutually exclusive but seem to exist in different patterns whose configurations help to shape the child's coping style." (p. 353) Thus, a child may be passive in one area and active in another; also, there can be both positive and negative outcomes associated with both poles of the dimension, depending on many factors.

Perhaps the most important element in Murphy's work is her consideration that narcissism and identity grow hand in hand as the result of mastery experiences. She writes (1962), "Through the successive experiences of spontaneous mastery of new demands and utilizing new opportunities for gratification, the child extends and verifies his identity as one who can merge certain aspects of the environment." (p. 374) The growth of self-esteem and identity are both key elements in the child's adaptation to the world, contributing to the further success of the child.

Haan. Over the past twenty years Norma Haan has developed an extensive theory of coping. She argues that many conceptualizations of ego processes have assumed ego as a state rather than a process. In contrast she develops a view of ego as "... exclusively processes, specifically the ceaseless acts of people assimilating new information about themselves and their environments and accommodating to these assimilations by constructing actions that attain and re-attain an unremitting series of dynamic equilibriums." (Haan, 1977, p. 33) She has developed a taxonomy of ego processes with three main categories of coping, defense, and fragmentation. Coping involves purpose and flexibility, adheres to reality and logic, and allows and enhances affective expression. Defensiveness is negating and rigid, distorting of reality and logic, and allows covert impulse expression. Fragmentation is the most distorted set of processes, characterized by ritualism, irrationalism and violation of reality. Haan also identifies several generic processes that each have manifested themselves in each of the three modalities. For example, the generic function of discrimination, the separating of idea from feeling, and the idea from idea, has all three modalities. Objectivity, the coping process, involves seeing clearly the differences among elements in the world and self. For example, "I am of two minds about this problem." The defensive posture is isolation, for example, "I can't see the forest for the trees." Fragmentation is the least adaptive process; it fails to view reality adequately, "The tree is the only one; there is no forest."

Haan also groups her ego processes according to their function. The cognitive functions deal with problems in the world and are the instrumental aspects of persons' problem-solving efforts. Three general strategies are included: discrimination, detachment and symbolization. There are also affective regulation processes such as diversion, transformation and restraint that function to control affective expressions. Another set of functions is called reflexive-intraceptive, which involves the person's assimilation and engagement of his/her own thoughts and feelings. Finally there are the attention-focusing strategies that direct a rson's thoughts toward a solution or resolution of a problem. (See Table 1)

Haan (1977) argues that the chief goal of the person is maintain organization and self consistency.

> The person will cope if he can, defend if he must, and fragment if he is forced, but whatever mode he uses, it is still in the service of his attempt to maintain organization. (p. 42)

She argues that the synthesis of the ego processes is brought about by the person's need for equilibrium and self-consistency.

There are several other aspects of Haan's theory that are important to her position. She argues that all drives and goal states are directed or filtered by ego processes. The importance of this idea is that she does not commit herself to any particular set of drives, whether libidinal, aggressive or whatever. Nor do self-actualization, competence, or other outcomes form a part of her theory. In keeping with her focus on process, she does not even suggest specific stages of development.

The process nature of her theory does suggest that persons are involved in the social construction of reality. She writes (1977), "Altogether, ego processes engage the problems of living by constructing resolutions to changing situations instead of reproducing learned responses emanating from achieved states." (p. 44) She argues that while people do show continuity in their constructions, they also change their conceptualizations of themselves and the world. In contrast with psychoanalytic theory, Haan argues for the centrality of rationality in personality theory. Coping processes represent rationality at work. However, she notes that it is possible for persons to develop intrasubjective view points that are inconsistent with intersubjective rationality.

Ego processes are described in terms of assimilation and accommodation. It is an ongoing process of integrating experiences and constructing reactions. It is the imbalance of assimilation of accommodation that results in defensive reactions. Thus, defensiveness occurs when the environment countervenes a person's ongoing course, making sufficient assimilation impossible, when a decision is required beyond one's assimilated understanding, or when assimilatory activity is preferred to the detriment of accommodatory capabilities. Fragmentation occurs when the person reacts to stress in such a way that not only is he/she unable to accommodate, but he/she retreats to privatistic assimilatory modes. Another issue is the realtionship between ego processes and cognitive, moral and social structures. By and large, Haan argues that certain cognitive processes are necessary, but not sufficient for ego processes. She notes that affect, cognition and many other factors all come into play in coping.

Havighurst. Havighurst, in Developmental Tasks and Education (1948), presented the first systematic framework which identified specific kinds of problem-mastery that are critical to competence and satisfaction at each stage in the human life-sycle. He credited many people as contributors, including Lawrence Frank, Carolyn Zachry, Peter Blos, Erik Erikson, David Prescott and Caroline Tryon. His synthesis, however, gave added coherence, power and utility, to the idea that physiological, social and psychological forces combine to set a predictable, sequential series of life-tasks, for all members of a society. Some of the tasks are the development of skills in the use of one's body, as well as a sense of satisfaction with one's body; skill in relating to age-mates; increasing emotional independence of parents and other adults; selecting and mastering an occupation; desiring and achieving socially responsible behavior; and building conscious values in harmony with an objective world-picture.

Havighurst said (1948), "A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks." (p. 6) The last point clearly reflects the view of Freud, Jung, Adler, and other dynamic psychologists, that human life is an evolving, sequential process wherein present actions are shaped by all prior learning and tend to maintain their course with a powerful inertia, in a Newtonian sense, that constrains all present and future actions. Havighurst saw two particularly useful features of the developmental task approach, for educators. "First, it helps in discovering and stating the purposes of education, and second, it helps in timing educational efforts appropriately." (Havighurst, 1948, p. 8)

Havighurst has carried out empirical research on what constitutes effective adjustment at all of the stages in the life-cycle after early childhood. With Taba (Havighurst & Taba, 1949), with Peck and others (Peck & Havighurst, 1960), he identified social and psychological factors that define or explain "morally mature" behavior, and overall adjustment to life. "Good character ... develops when the external and automatically accepted influences are transformed gradually into inner, conscious, and personally directed criteria of behavior." (p. 188) Another consideration is the quality of the motivation leading to acceptable conduct, to an intelligent understanding of moral principles, and the ability to apply them in daily conduct. "Second, and more important, is the conviction that moral principles are worth sacrifice -- even the sacrifice of social acceptance and popularity." (p. 189)

In a longitudinal study of youth in "River City" (Havighurst, Bowman, Liddle, Mathew & Pierce, 1962), he summarized, "The best equipment for satisfactory growth is to have a keen mind, to accpet oneself and be well accepted by others, and to come from a middle class family." (p.35) The last point, of course, is not an endorsement of status distinctions but an empirical finding that higher social status, through a complex combination of factors, facilitates adjustment and mastery of life-tasks, over and above its economic advantages. Almost all studies of this kind, at all age levels, have found this to be true.

Havighurst conducted the first series of studies of normative samples of middle-aged people, with Warner, Peck, Neugarten and others. His own particular interest led to his monograph The Social Competence of Middle-Aged People (1957). He identified nine major roles that American adults may enact: worker, parent, spouse, homemaker, citizen, user of leisure time, church member, club or association member, and friend. He developed highly reliable scales for rating performance in each role.

He found that competence reaches a high plateau for most people, from 40 to 70, with a slight decrease in later years; that the dispersion of scores increases with age; and that effective functioning resists structural (physical) decline. He also concluded that older people function better if their society gives high status to old people, and if they are fortunate enough not to lose their spouse, other close and intimate friends, or their income. In this study, as in all of his many studies, Havighurst gives due weight to the external forces and events that help to shape a person's life, as well as to the internal characteristics a person brings to help shape his own life effectively.

As one of the pioneers in studying adjustment in old age, Havighurst worked with colleagues such as Hans Thoma, Marcello Cesa-Bianchi, and Ruth Albrecht. In one of his early studies (Havighurst and Albrecht, 1953), he found that personal adjustment, self-perception, and social approval were all strongly related (correlations of .60 - .76). "Personal Adjustment" was a measure of effective performance in eight of the social roles which he subsequently applied to studying middle-aged competence. He and Albrecht found that social activity and social approval were much more closely related to personal adjustment than were age or social status, per se. They concluded that "All kinds of people can achieve happiness in their later years, but none of them finds happiness thrust upon him." (p. 289)

In the developmental research Havighurst has fostered and pursued for many years, a salient feature has been his practicality. He has chosen to define competent behavior in everyday terms -- not only in his language, which is unfreighted with jargon, but in his attention to these aspects of life which people everywhere recognize as important to their well-being and happiness. Without making an issue of it, he has adopted a broadly interdisciplinary approach, using insights, concepts, and tools drawn from sociology, psychology, anthropology, medicine, and philosophy, expressing them in everyday language. The result has been a mosaic of research on many aspects of competence and adjustment, over the human life-cycle, which demonstrates clear, repeated patterns of identifiable elements and causes of competence, their expression in everyday life, and their relatively stable continuity over the life span.

Peck. Like Havighurst, and frequently in collaboration with him, Peck has conducted research on the components of healthy, effective behavior at all parts of the life-span after early childhood. Some of this has been basic research; some, applied research in business and educational settings. His first work, in 1948-50, led to the conceptualization of stages in the development of moral behavior. (Peck, 1951) Applied to longitudinal data (ages 10 to 16) on a representative sample of youth in "Prairie City," it led to the finding that mature moral behavior could be explained as the product of six factorially identified components: ego strength, superego strength, friendliness, spontaneity, a hostility-guilt complex (negatively weighted), and moral stability. This stage theory had its roots in the writings of Freud, Fromm, Piaget, and Havighurst. A distinctive pattern of these characteristics was found to distinguish each character type on the scale of five ascending stages of moral maturity: (1) amoral, (2) expedient, (3) conforming, (4) irrational-conscientious, and (5) rational-altrustic.

For the first time, it was possible to relate the moral behavior and motives of young people to properties of their families, using observation, interview, and anecdotal reports on the parents' behavior. This comparison demonstrated that the moral maturity of the youth could validly be explained as the product of their families' consistency, degree of democratic child-rearing, mutual trust and approval, and severity (negatively weighted).(Peck & Havighurst, 1960)

Kohlberg arrived at his conception of stages in the development of moral judgment after studying the Prairie City research documents, in the early 1950's, Havighurst recalls. Kohlberg (1969), and others have done much subsequent research using tests of moral judgment. Additional research is still needed, however, on actual moral behavior, to go beyond the limited sample that was available in the Prairie City study.

Considering "mature moral behavior" as another way of defining socially competent behavior, Peck found that it could be explained as the product of (1) rational judgment, (2) a positive, friendly concern for other people, (3) a well-organized, internally coherent personality structure, and (4) self-fulfilling spontaneity, all taken together.

In a current research program, the Teaching-Learning Interaction study, adolescents' intellectual and attitudinal changes, over a school year, have been found to be significantly affected by their coping skills (peer and teacher rated). Teachers distinguish two different, though related kinds of coping skill: Academic (works hard, has good ideas, thinks for himself/herself, etc.), and social-emotional (not anxious, doesn't lose temper, gets along with classmates, gets along with teacher, etc.). (Peck, R.F., Blattstein, A., & Blattstein, D., 1979; Peck, R.F., Blattstein, D., Blattstein, A., & Fox, R., 1980; Peck, R.F., Clements, R., & Green, J., 1978) Moreover, students' gains are found to be significantly affected by teachers' treatment of them, as assessed by David Ryans' three factors (Ryans, 1960): Kindly-Understanding, systematic-organized, and stimulating-imaginative. (Peck, R.F., Blattstein, A., & Blattstein, D., 1979) These kinds of teaching behavior also are found to be quite stable (.68) over time, and over different subject-matter classes. (Peck, R.F., Olsson, G., & Green, J., 1978)

Moving along the life-span, Peck, together with McGuire and Veldman, studied the qualities that characterized different levels of mental health in college undergraduates who were prospective teachers. (Peck, 1962) Students at the lower levels of mental health were characterized by these qualities: Many intense, primitively self-centered desires; strongly conflicting feelings about many aspects of life; relatively poor forethought and self-discipline; and destructive or alienated interpersonal behavior. Students at the average level of mental health showed a dependent social conformity, got along on a thin diet of pride, joy or satisfaction, and showed pervasive anxiety of a tolerable but uncomfortable kind; but they also showed the active desire and courage to keep going, trying to make life turn out at least somewhat satisfactorily.

At the upper end of the mental health scale, the students were strongly motivated to build self-realizing lives; they had well-developed, many-faceted personalities and activities; they freely experienced powerful emotions, and trusted their feelings; they thought clearly and far-sightedly; they were integrated, internally congruent people, who could stand a good deal of inner or outer stress; they were genuinely ethical; they liked people and sought their company; and, finally, they had all these qualities despite the fact that they, too, experienced problems, hurts, disappointments and frustrations.

Much of Peck's research work on the period of early adulthood dealt with relationships between personality and career choice, and career competence. In one study, he and Siegelman (1960) demonstrated a close match between personal values and needs, and occupational choice. Men who were performing effectively in three diverse occupations (minister, chemist, military officer) were found to have needs and values that were specifically predicted to be critical to success in each occupation. These were quite different across occupations. Peck also found this match between job demands and individual characteristics in other studies of business executives (Peck & Thompson, 1954) and teachers (Peck, 1959b)

Another study (Peck & Parsons, 1956) was almost unique in that it predicted, from personality analysis, the objective productivity of individual workers over the subsequent year and a half, with validity of .50 to .66 in three different groups. The high producers showed better than average applied energy; active, personal satisfaction in doing the work; and an active inclination to be self-directing in carrying out tasks. Some of the low producers were too anxious, depressed and inadequate-feeling to exercise much confident, purposeful effort on any undertaking. Others worked only because they had to, with little personal interest or satisfaction; they were rarely self-starting or self-directing. A sizeable group of low producers showed basically immature, ill-integrated personalities, with much selfish egocentrism. They frequently showed poorly controlled, childlike impulsiveness and irresponsibility. Most of the workers with expremely high accident rates were in this last group. (Accident-proneness was also predicted in this study, with 75% accuracy.) Finally, in keeping with the psychological findings, total individual output was found to be inversely related (r = -.60) to each man's variability of output. High producers varied little; low producers varied two to three times as much in daily output. "Personality stability" was evident, and related to work performance, in a very literal, concrete way.

In Psychological Developments in the Second Half of Life, Peck (1956) extended the framework of Erikson to cover the span from middle to late life. He postulated seven critical issues (which might not occur in the same chronological order for everyone) and the psychological properties necessary to meet them: (1) Valuing wisdom vs physical powers, (2) socializing vs sexualizing in personal relationships, (3) cathectic flexibility, (4) mental flexibility, (5) ego-differentiation, (6) body transcendence, and (7) ego transcendence. Applying this framework in one of the Kansas City studies of normal adults which Havighurst led (Neugarten, 1964), Peck found no systematic age differences, or decrement, in these capabilities, but major differences favoring people of higher socioeconomic status. The evidence "strongly suggests that personality patterns are firmly established long before middle age and that they tend to continue throughout adult life ... Measures designed to maximize general adaptability and personal integration in the interests of successful aging need to be taken early in life, in the formative years of personality development." (p. 42)

In a subsequent study (Peck, 1959a,though published at an earlier date than the one just cited), these adults' overall mental health was assessed from interview and TAT data, then cross-validated against their responses to a sentence completion measure. An adjustment score, objectively derived from the sentence ompletion, agreed with the interview-based mental health rating 83% and 93%, respectively, in the 'low' and 'high' mental health groups.

The sentence completion responses of the "high mental health" group were in substantial contrast to those of the "low's," as follows: (1) Pleasant anticipatory set toward life vs distrustful, unpleasant anticipatory set, (2) active, self-motivated behavior vs passive resignation to external forces, (3) firm, clear self-concept which shows discriminating, effortful thought vs vague, undefined self-concept, (4) self-respecting sense of competence vs self-deprecating sense of incompetence, often with self-pity, (5) emotional stability vs explosive, in appropriate emotionality, (6) a friendly, complimentary attitude toward other people vs a hostile, derogatory attitude, (7) interactive sharing with people vs lonely isolation, (8) pleasant, reasonable self-indulgence of a sociable or socially acceptable kind vs a destructive chain reaction of excessive demands on others, followed by frustration, then anger, then rejection by others.

Summing up research on all but the earliest stage in the life span, over many life settings, Peck's studies have identified a number of recurring themes which both define and explain socially and personally competent, self-satisfying behavior. No matter how variously they have been measured, these are the observed hallmarks of such competence: A clear, foresighted, rational way of thinking; a fundamentally friendly attitude toward other people; (which leads to) active, pleasant relationships with others, and principled, ethical concern for others. Internally, Peck reports, healthy, competent people show congruence and integration of their thoughts and feelings, without bruising, irresolvable conflicts. They react to events with appropriate and moderated emotion. They feel a drive to realize their human capacities and they take autonomous initiative in dealing with life and work. Finally, they take ego-transcending pleasure in others' well-being.

These are scarcely new concepts, as ideas. Peck's efforts have been devoted to developing idea-systems to define and combine them in a conceptually coherent way, developing improved ways to assess such characteristics, and doing empirical research to determine the validity of the theoretical formulations. The most recent form this has taken is the conceptual model, the instruments, and the validation design which are embodied in the present Cross-National Study of Coping Styles and Achievement (a longitudinal follow-up study of the lives and careers of some of the young people who were assessed in the Cross-National Study is now underway, as well, fifteen years later).

Table 1

Haan's Taxonomy of Ego Processes

Generic processes	Modes		
	Coping	Defense	Fragmentation
		Cognitive functions	
1. Discrimination	Objectivity	Isolation	Concretism
2. Detachment	Intellectuality	Intellectualizing	Word salads, neologisms
3. Means-end symbolization	Logical analysis	Rationalization	Confabulation
		Reflexive-intraceptive functions	
4. Delayed response	Tolerance of ambiguity	Doubt	Immobilization
5. Sensitivity	Empathy	Projection	Delusional
6. Time reversion	Regression-ego	Regression	Decompensation
		Attention-focusing functions	
7. Selective awareness	Concentration	Denial	Distraction, fixation
		Affective-impulse regulations	
8. Diversion	Sublimation	Displacement	Affective preoccupation
9. Transformation	Substitution	Reaction formation	Unstable alternation
10. Restraint	Suppression	Repression	Depersonalization, amnesic

SECTION III

SAMPLE DESCRIPTIONS

COPING STYLES AND ACHIEVEMENT:
A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

The University of Texas at Austin

1981

SECTION III

SAMPLE DESCRIPTIONS

THE SAMPLE USED IN THIS RESEARCH

The sample of boys and girls who were studied is primarily an urban population. They lived in small or large cities, and attended schools that contained children of the socioeconomic levels desired for the sample. The cities from which the samples came are:

Brazil	Sao Paulo
Mexico	Mexico City
England	Greater London
Germany (Stage III only)	Hannover, Mannheim, Heidelberg and Koblenz
Italy	Milan
Yugoslavia	Ljubljana
USA -- Chicago	Gary, Indiana and Flossmoor, Hinsdale and Evergreen Park, Illinois
USA -- Austin	Austin, Texas
Japan	Tokyo

The Age-Group

It was decided to study children of two age groups. The younger group should be old enough to answer a variety of inventory questions, and to take tests with fairly complicated directions. The age of ten seemed about right for this.

The older group should be as old as possible before the termination of compulsory education. In this way a cross-sectional sample could be obtained of mental ability from both socioeconomic levels to be studied. This procedure worked pretty well with the exception of Brazil, where secondary education is not compulsory and many children have finished the four-or five-year primary school before the age of fourteen and have not gone on to middle school.

In order to give the researchers as much help as possible in getting their samples, the age-range was made eighteen months rather than a year. That is, children aged between nine years six months and ten years eleven months at the time of testing were included in the sample. The other age group was between thirteen years six months and fourteen years eleven months. Some stations tested children in two grades -- (4th and 5th) and (8th and 9th) -- in order to secure the sample, while others tested in one only -- (5th and 9th) -- for a given age level. Thus the samples contained children with somewhat different amounts of schooling at different stations. The Brazilian ten-year-old sample had some children in the third and some in the fourth grades of primary school, while the Italian sample had some with five and some with six years of schooling, and the English ten-year-old sample had everyone with five years of schooling.

Socioeconomic Status

The aim of the research in connection with socioeconomic status was to get two groups of children from families with clearly distinct styles of life. One style of life was to be that of the upper-middle class, consisting of people in professional and managerial occupations, with a good deal of formal education. The other style of life was to be that of the upper-lower class, the manual workers at the top of the manual working group and non-manual workers at the bottom of that group. Choosing these two social classes would omit an intermediate group -- the lower-middle class. It was recognized that modern industrial societies have blurred the distinctions of social status between manual and non-manual workers. That is, there are many manual workers possessing a high degree of skill and training and earning a good deal of money who are higher in income and at least equal in social status with some minor white-collar workers, such as post office clerks, sales clerks in shops that sell inexpensive goods, and minor office workers. Thus the "upper-lower class" will include many white-collar workers, while the lower-middle class would include some highly skilled and highly paid manual workers.

In order to keep the two samples as distinct as possible, schools were sought in areas of working-class population, and the lower-middle class was excluded from the study.

Measurement of Socioeconomic Status

The socioeconomic status of the child's father was determined on the basis of his occupation and his educational level. Occupation was measured against a scale of occupational status -- a six point scale which is commonly used by sociologists in various countries. The scale is shown in Table 1. It has been shown in studies of occupational status or occupational prestige in many countries that there does exist a rather stable cross-national consensus on the status of most occupations. Thus, Rossi[1] has summarized such studies, and indicated that the correlation coefficient of occupational status measured in any two modern countries is always above 0.9. For instance, Hutchinson[2] measured occupational prestige among a sample of men in the city of Sao Paulo and found that the scale values correlated 0.92 with the scale values found by Hall and Jones in England.

However, the child's report of his father's occupation is often somewhat vague. He may simply say that his father is a farmer, or that he "sells things." Since the occupation of farmer can range in status from the lowest (farm laborer) to the highest (owner of a large estate); and the occupation of a salesman can range from selling vegetables at a street market to selling automobiles and on up to selling steamships; it is necessary to have more information in such cases. We reduced the vagueness of response by the following directions to the respondent:

> How far did your father go in his education? What kind of schools did he attend? What was the highest grade he reached in school or university?

> What is your father's occupation? Tell in two or three lines what his work is. If he is a salesman, tell what he sells. If he is a factory manager, tell what kind of a factory he manages. If he has people working for him, about how many are they? If he is a farmer, does he own his own land, and does he have anyone working for him?

Also, the teacher was asked in some cases to supply missing information on the child's father's occupation.

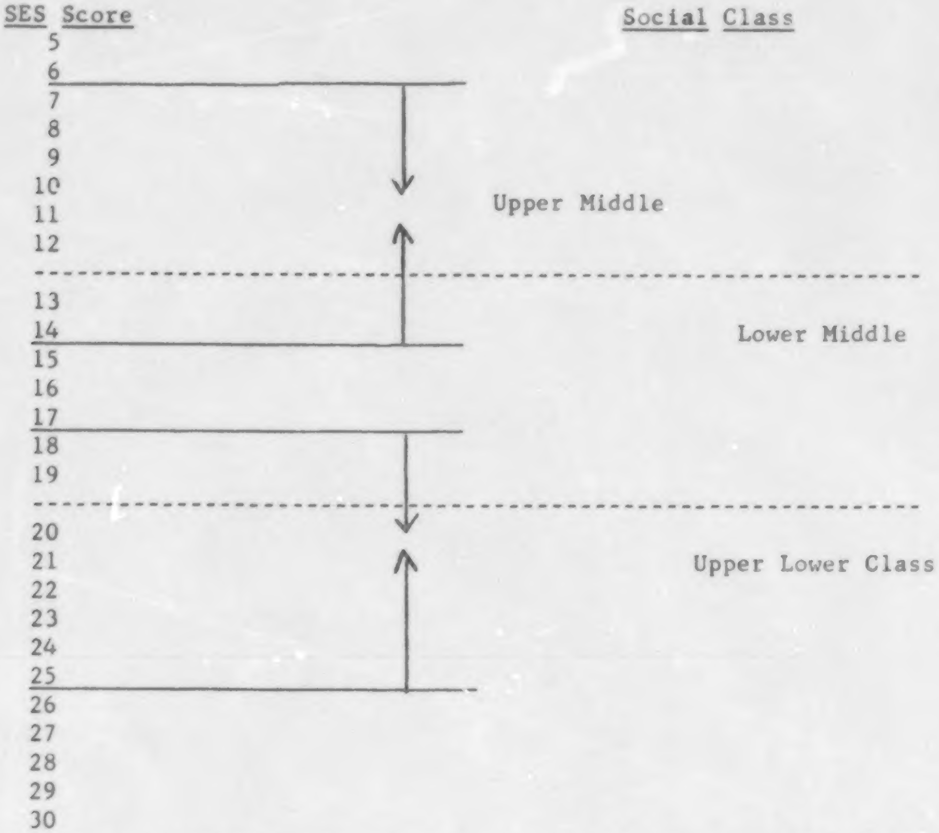
Still, in order to correct remaining ignorance, we combined the rating of the father's occupation with a rating for his educational level. Often, when one only knows that a child's father is a salesman, one can fix his socioeconomic status by knowing whether he has only a primary school education, or is a commercial school graduate, or if he has studied in a university.

Accordingly, the respondent child was asked to indicate how far his father had gone in education, and this level was given a rating from 1 to 6, on a scale devised separately for each country. The educational scales are shown in Table 2. In a country with one or two percent of the adults having graduated from college, secondary school graduation constitutes a higher educational status than it does in the USA, for example, where about 50 percent of adults are secondary school graduates and 15 percent are university graduates.

The two scores for each father were combined into a single score, giving the educational rating a weight of 2, and the occupational status a weight of 3. Thus the socioeconomic scale ranged from 5 (high status) to 30 (low status).

In the following chart can be seen an example of the way the samples were chosen according to their socioeconomic status. Each station determined its own SES limits for its two social class samples. In this particular case, the upper-middle class was arbitrarily stated to consist of men with SES scores from 7 to 14.

A gap was left on the scale for lower-middle status, and the upper-lower class sample was chosen from students with SES scales from 18 to 25.


SES Score
Social Class
5
6
7
8
9
10
11
12
Upper Middle
13
14
Lower Middle
15
16
17
18
19
20
21
22
23
24
25
Upper Lower Class
26
27
28
29
30

In Brazil, to illustrate the degree of variation that was locally judged necessary, the Upper Middle sample was defined by scores between 5 and 14; the Upper Lower sample by scores between 19 and 27.

A memorandum on "Measuring socioeconomic status" was distributed to the various field stations. It gave the rationale for the socioeconomic divisions as follows:

> "We have spoken of upper middle and upper lower class groups, but without intending that they should be narrowly limited. There is a substantial group of some 20 to 25 percent of lower middle class people in most societies. If we excluded all children from such families, we would make a great deal of trouble for ourselves, since many such children will be in the classes we study. Therefore, we propose to broaden the upper lower class group to include some people who are on the margin of lower middle class (some skilled workers and

some small merchants). However, we want to make the two socioeconomic groups really different, and therefore we should exclude a number of children from families who are right in the middle of the lower middle class. They will have occupational ratings of 3 or 4, and they will have an educational level of a middle school in Europe and a high school graduate in the USA.

"If we allow a weight of 3 for the occupational status and of 2 for the educational status, a father with occupation 3 and education 3 would get a socioeconomic score of 15. A father with an occupation rating 4 and an educational rating of 3 would get an 18. Probably the ratings of 15 and 16 might be omitted from the study. However, this practice might vary from one country to another, depending on the actual occupational and educational scales that are used.

"In this way, very few children will need to be excluded from the Study, and there will be no overlapping of the two socioeconomic groups."

As Table 3 shows, there is little or no overlapping of occupational status between the UM and the UL samples. However, there are some differences between the samples which deserve attention as the data are analyzed in the study. One of these is the relatively low occupational status of the United States and Brazil UL samples, compared with the Mexican, English, Yugoslav,and Japanese samples. The latter four all have at least two-thirds of their members in category 4, while the first two have larger proportions in category 5. Similarly, the USA, Italy, Yugoslavia and Brazil have more category 3 members in their UM sample than do the others.

It should be stressed that most of the stations used the combined occupational status and educational level data in determining the socioeconomic status of their subjects. It is partly for this reason that the occupational distributions in Table 3 differ from one country to another.

Problems of Sampling

The sample design is represented in Table 4. With age, sex, and socioeconomic status the principal variables, it was designed to have 100 pupils in each cell of the design.

It was not feasible to take a representative sample of ten-year-old and fourteen-year-old children from each county in the study, or even from each city in the study. It was necessary to limit the sample to a small number of schools which were known to be reasonably good representations of the schools in the area, and of the socioeconomic groups in the area. The researchers in each station had to use their best judgment and their best efforts to get representative groups for their samples. Although the schools were generally public schools, some private schools appeared in the samples in Japan, Brazil, and England. The Japanese researchers sampled a number of schools to get their research subjects, and these came fairly close to getting a representative sample of Tokyo pupils in the two socioeconomic groups. Other centers worked in a smaller number of schools.

There were two additional practical problems in getting comparable cross-national samples. One was that of getting a good sample of children of a given age, when the age-grade structure of the schools differ in different countries. Some countries have practically all children of a given age in the same school grade. This is particularly true of England and Japan. On the other hand, Brazil and Mexico and the USA appear to have a wide age distribution in a given grade, with the children of a given age overlapping two or three grades.

The other problem was that of getting enough children who fit our age and socioeconomic criteria within a small number of school classes. Entire class groups had to be tested, even though not all of the pupils would suit the age and socioeconomic criteria. This meant testing a number of pupils whose test protocols could not be used in the research. For example, the Chicago station tested about 1600 pupils in order to get 800 who fit the criteria.

Our conclusion is that the various national samples are roughly comparable, though none of them is a strictly random sample of children in the age and sex and socioeconomic groups of the cities where the research was conducted.

Table 1
INTERNATIONAL SCALE OF OCCUPATIONS

Urban Occupations

1. Medical doctor, lawyer, clergyman, university professor, engineer, owner of a large business or factory, manager of a large business or factory, high military official, high government official.

2. Manager or owner of a business or factory of medium size, accountant, secondary school teacher, primary school teacher with university level of education, commissioned officer in military service from lieutenant to major, journalist, civil servant of executive status, stock brocker, insurance salesman.

3. Owner of small business or shop with employees, civil servant of middle level, primary school teacher with secondary level education, travelling salesman, office or bank clerk, trained nurse, laboratory technician, non-commissioned officer in military service from lieutenant.

4. Owner of a small fruit or vegetable stand without employees, clerk in a shop, foreman, mechanic, policeman, electrician, other skilled workers, restaurant cook, conductor or driver of a train.

5. Semi-skilled worker, factory worker, truck driver, waiter, barber, soldier, sailor.

6. Unskilled worker, construction worker, street sweeper, stevedore.

Rural Occupations

1. Landowner with large land area and large numbers of employees for his particular area or state. Does not do manual work on his land. May have a second house in the city.

2. Intermediate, but still rather large farmer of the "gentleman-farmer" type.

3. Small but independent landowner. May do all of his own farm work with machinery or may have a small number of employees. The administrator of a large fazenda or plantation also falls in this category.

4. Small landowner who does his own work. A foreman on a fazenda or plantation also may fall in this category.

5. One who lives on the land of the owner but has his own house, a small land or animal allotment, and shares crops with the owner or gives the owner a certain number of days' work a year: a meeiro or parceiro.

6. Unskilled agricultural laborer who works for wages and probably does not have a guaranteed income. May live in a village and go out to work by the day. Often lives in a small house provided by the owner on his land.

Table 2
EDUCATIONAL LEVELS IN THE VARIOUS COUNTRIES

vel	USA	Brazil	England
	University Graduate	Some Univ. and Univ. Graduate	Univ. Graduate
	Some University	Sec. School Grad.	Some post-secondary
	Sec. School Grad.	Completed Jr. Sec. School	Sec. School Grad.("A"Level) (6th Form)
	Some Sec. School	Some Jr. Sec. School	Some Sec. School ("O"Level) (5th Form)
	Primary School Grad.	Primary School Grad.(4 or 5 yrs.)	Left School at 15
	Some Primary School	Less than 4 grades	Left School before 15

Germany	Italy
Univ. diploma or degree	University Graduate
Completed Sec. School and possibly some University	Completed Sec. School and possibly some University
Completed 10 year school plus vocational school	Some secondary school
Completed Primary School and Apprenticeship or Commercial School	Completed 8th grade
Completed Primary School and some Vocational School	Grades 5 to 7
Incomplete Primary School	Incomplete Primary School (less than 5th grade)

Mexico	Japan	Yugoslavia
Univ.Graduate or some Univ. work	University Graduate	University
Complete Univ. Preparatory School ("Preparitoria"). Normal School or equivalent	Some Univ. or Graduate of old system professional college or normal school; Graduate of new system Junior College	Some higher education, beyond secondary level, but not a university graduate
Complete Secundaria or equivalent	Complete middle school general course(old system). Complete upper sec. school general course(new system).	Sec. school graduate of a four-year course after an eight-year primary school
Some secundaria, or equivalent	Complete vocational middle school (old system). Complete upper sec. school vocational course (new system)	Vocational school, usually 3 years, after primary school
Complete primaria (6th grade)	Complete upper primary school (old system). Complete lower sec. school (new system)	Complete 8-year primary school
Less than 6th grade	Primary school, complete	Incomplete primary

Table 3

OCCUPATIONAL LEVEL OF SAMPLES: PERCENTAGES

	United States				Japan	
	Chicago		Austin			
Level	UL	UM	UL	UM	UL	UM
1	0	12	0	30	0	33
2	0	36	0	42	0	67
3	2	40	6	26	6	0
4	30	12	48	2	79	0
5	67	0	42	0	15	0
6	1	0	4	0	0	0

	Yugoslavia		Italy		England	
	UL	UM	UL	UM	UL	UM
1	0	7	0	43	0	39
2	2	52	0	30	0	61
3	13	34	12	27	0	0
4	67	6	57	0	79	0
5	10	1	31	0	21	0
6	8	0	0	0	0	0

	Mexico		Germany		Brazil	
	UL	UM	UL	UM	UL	UM
1	0	74			0	48
2	0	20			0	30
3	20	6			3	21
4	67	0			30	1
5	13	0			66	0
6	0	0			1	0

Table 4

THE SAMPLE DESIGN

	Socioeconomic Status			
	Upper Middle		Upper Lower	
Age	Male	Female	Male	Female
10	100	100	100	100
14	100	100	100	100

THE COUNTRY BY COUNTRY SAMPLE DESCRIPTIONS

BRAZIL

Demographic Characteristics

Brazil is the largest country in Latin America; it is located at the East of South America, with an approximate area of 8,500,000 km^2 and an estimated population of 96 million inhabitants in 1970. According to this estimate, the demographic density is 11.3 inhabitants per km^2. However, some regions of the country are sparsely populated whereas others are densely populated, as can be seen in Table 1. (Data from 1960 census; Werebe, 1963.)

Table 1

Distribution of Population by Georgraphical Regions

Regions	Population (%)
North	3.55
Northeast	24.16
East	36.37
South	32.68
Central-West	3.34

The country is characterized by geographic, hydrographic, climatic, economic, and social contrasts, as was stated by Bastide (1959) and Lambert (1959). Generally speaking, the North, Northeast and Central-West regions are the ones where life is more difficult in all aspects.

The accelerated urbanization of the more prosperous regions has increased the rural migration phenomenon, as can be seen by the following data: the percentage of people living in the rural areas in 1940, 1950, and 1960 was 69 percent, 64 percent, and 55 percent, respectively. These percentages show also that, in spite of the fact that migration is a growing phenomenon, almost half of the Brazilian population is still living in the rural areas. As far as geographic mobility is concerned, it tends to proceed from north and northeast to southeast regions.

Concerning social mobility, as is observed in Table 2, it is going on slowly, the mobility from lower-lower to upper-lower class being greatest. This is due to the industrialization process going on in Brazil.

Table 2

Social Class Distribution in Brazil at Various Dates
cf. Havighurst and Moreira, 1965, p.99

Social Class	1870-72 %	1920 %	1950 %	1955 %
Upper	1.0	1.5	2.0	2.0
Upper-Middle	5.0	2.0	3.0	4.0
Lower-Middle	6.0	9.5	12.0	16.0
Upper-Lower)		10.0	33.0	36.0
)	73.00			
Lower-Lower)		70.0	50.0	42.0
Slaves	15.0	-	-	-

The age groups of the Brazilian population according to UNESCO data (cf. Pfromm Netto, 1968, p.24) are distributed as follows:

Table 3

Distribution of Population According to Age Groups

Age	Percent
0-9	30.9
10-19	21.3
20-59	43.2
60 and more	4.6

It can be observed that more than half of the Brazilian population is under 20 years of age.

The distribution of the population according to socio-economic level is very heterogeneous, with a remarkable preponderance of lower-lower and upper-lower classes, according to havighurst and Moreira. (See Table 2.)

Educational Structure

The educational organization in Brazil is ruled by a law known as "Diretrizes e Bases da Educacao Nacional" (Policies and Bases of National Education) promulgated in 1961. According to the law the goals of elementary school are: "to develop children's reasoning and expressive activities as well as their integration in the physical and social milieu." According to that law the expected goals of secondary school level are not very precisely stated. It says, "Secondary school, as an extention of elementary school, has by purpose to form the adolescent." The structure of the system is composed of three stages: elementary, intermediate and higher levels. The elementary level comprises the nursery schools and kindergarten (not compulsory and with a relatively small enrollment) and the elementary schools, where attendance is compulsory by law and is offered to children from seven years of age on. The elementary school consists of four grades or years, with five years offered in some cities. In some country schools, education is provided for only three years. Approximately 60 percent of Brazilian pupils complete the 4th year of the primary school.

The intermediate stage includes the secondary school which is divided into two stages: the "Ginasial" (4 years, corresponding to the junior high school) and the "Colegial" (3 years, corresponding to the senior high school). Besides, at the intermediate stage there are technical schools of various sorts to prepare people to work in industry, commerce, agriculture and elementary school teaching.

Around one half of the students who complete the elementary school enter the first stage of the secondary school, after being submitted to an entrance examination. Many students do not pass this examination (*Realidade*, 1970) which is very difficult. However, educational authorities are planning an educational structure reform where the elementary school would be integrated to the first stage of the secondary school. This will be a unified school, lasting 8 academic years. This change in the structure will be followed by a series of curricular and method changes. Some of these changes were beginning to be put into practice by the time of the third stage of this research.

The higher level comprises the university with the following sublevels: undergraduate, graduate and specialization courses, with various durations of time of schooling depending on the specific areas. The majority of the university courses last four or five years, medical courses last six years.

According to INEP (1967), Brazilian elementary school teachers have qualifications as follows: 56 percent with complete courses in normal schools, (designed to prepare elementary school teachers). From the remaining 44 percent, nearly 16 percent have incompleted elementary school courses.

The great majority of elementary school teachers are female: in 1957 there were 170,376 females and 12,680 males teaching in elementary schools in Brazil (Werebe, 1963, p.118). Data referring to entrance in normal schools (intended to prepare elementary school teachers) show a proportion of four times more females than males (80.5 percent females and 19.4 percent males in 1969). These data are in consonance with those presented by Moreira and Havighurst (1965, p.235) which show that females constitute 93 percent of the total number of teachers in elementary schools. The discrepancy between data referring to sex of students attending normal schools and the distribution of elementary school teachers by sex may be explained as follows: 1) boys often attend normal schools as a step towards attaining higher education; 2) when they remain in elementary teaching, men usually occupy administrative positions, as, for instance, school principals, supervisors, etc.

As to the socioeconomic level of origin of the elementary school teachers, we do not have data for Brazil as a whole. For Rio de Janeiro State (one of the more advanced in the country and not representative of the whole country), the distribution of elementary school teachers according to socioeconomic level was the following in 1950: (Havighurst and Moreira, 1965) Upper and Upper-Middle 26 percent, Lower-Middle 53 percent, Working-Class 20 percent. According to these investigators, "the primary school teachers come from a wide range of socioeconomic status, slightly more than half of them having been reared in lower-middle class families." (p. 235)

As far as secondary education is concerned, the first stage (ginasial) is more relevant for this report, since the fourteen-year-old sample came from these schools.

Training of secondary school teachers is given in the University Faculties of Philosophy, Sciences and Letters, with a curriculum which lasts four academic years.

A sample of middle-school teachers studied by Havighurst and Gouveia in 1962 contained about 60 percent men, and three fourths of the teachers were under 40 years of age. Approximately 65 percent of the teachers were university graduates, mainly from the Faculty of Philosophy, Science, and Letters (Liberal Arts in North American terminology). The remainder were mostly graduates of normal schools.

Concerning the socioeconomic origin of these teachers, approximately one fourth were from working-class homes, while about half were from the intermediate or lower ranks of the middle class.

For the middle schools where the fourteen-year-old pupils of this study were studied, more than half of the teachers were women.

In elementary schools, classrooms generally contain about 40 students. As far as age is concerned, there is a wide variation, because there are no restrictions regarding age to enter the elementary school. Besides, because of a high level of school failure, many students remain in the same grade during two or more academic years. The distribution of students according to age in elementary schools is shown in Table 4.

Table 4

Distribution of Elementary School Children by Age, for Year 1959
(Data from Werebe, 1963, p.97)

Age	Total of Students
less than 7	82,994
7	722,242
8	987,833
9	1,043,744
10	1,014,747
11	829,815
12	650,341
13	404,983
14	217,525
15	95,662
more than 15	54,507
Total	6,104,393

It may be seen that there is almost a million and a half of children older than eleven and, therefore, beyond normal elementary school age.

It was not possible to obtain data referring to sex and socio-economic level distribution for these students.

In secondary level the percentage of girls is 47.6 percent and of boys 52.4 percent, according to data from IBGE (1966). At this level of educational structure, the majority of students come from Upper and Middle social classes, whereas in technical schools the majority of students come from the Lower classes (Hutchinson, 1960; Vasconcelos, Quirino e Cavalcanti, 1965; Gouveia, 1964). In the cities of Sao Paulo and Porto Elegre, nearly 22 percent of the students attending the first stage of the secondary level ("ginasios") come from the working-class families, (Gouveia, 1964). It is possible to say that, in general, first stage secondary school children ages range from 11 to 17 years of age, although official data were not available. In technical and evening courses the average age is higher.

The elementary education total duration varies from three to six academic years, according to the legislation of each state. In general, the academic year has 180 days, with four hours of classes per day. The total amount of schooling is 3,600 hours. In the more recent years, due to scarcity of elementary school buildings, there is an attempt to solve this problem by reducing the total number of school hours. Thus, many schools have only two or three hours of classes daily, for a given student, and two or three sessions.

Brazilian Constitutions of 1934, 1937, 1946, and 1967 state formally that elementary education is compulsory but the entrance age is not established, although the "Lei Organica do Ensino Primario" says that elementary school age should be from 8 to 12. (cf. Werebe, 1963, pp. 34-35). It should be added, however, that the law is not always enforced and the country has around 39 percent of illiterates among people from 15 years old on, according to the 1960 census.

The secondary school in its first stage (ginasio) lasts four academic years, with a number of days and hours of schooling similar to the elementary school level.

The proportion of public to private schools in elementary education is nine to one in favor of the public school, according to IBGE (1959). The percentages of students and teachers in private and public schools is shown in Table 5.

Table 5

Proportion of Teachers and Students in Public and Private Schools

	Private Schools (%)	Public Schools (%)
Total number of schools	10	90
Teachers	13	87
Students entering	12	88
Students finishing	18	82

cf. Anuario Estatistico do Brasil, 1959.

There are more educational opportunities in the more prosperous, more populated, more economically, culturally and socially developed regions. The south and the east parts of the country have more than 68 percent of the total number of elementary schools available in Brazil, 77 percent of the elementary school teachers, 75 percent of school entrances and 90 percent of the students finishing the elementary school level (IBGE, 1959).

According to official data for 1964, approximately 52 percent of secondary school students were in private schools. (Havighurst and Gouveia, p. 24-25). Table 6 shows the enrollment data for public and private middle schools in 1958 and 1964. There were almost equal numbers of boys and girls in the middle schools in 1965. Approximately 30 percent of an age group entered the first cycle of the middle school, and approximately 8 percent completed the second or colegial cycle.

Table 6

Public and Private Middle-School Enrollments 1958 and 1964*

	(thousands)			
	1958		1964	
Branch	Public	Private	Public	Private
Academic secondary	251	445	621	698
Commercial	10	127	36	214
Normal	38	40	92	84
Industrial	16	4	43	20

* Enrollment for last month of school year.

Source: Ministerio da Educacao e Cultura, *Sinopse Estatistica do Ensino Medio* (Rio de Janeiro, 1958 and 1965).

Education in Brazil is highly valued, because it constitutes a means of increasing one's social status. Such a statement may seem contradictory when we have in mind data about school attendance. Nevertheless, it should be said that this occurs because lower class parents frequently cannot maintain their children in the schools, because of financial limitations and because they need income from their children.

The parent-teacher relationships are maintained through the "Parent-Teacher Associations" which, according to current legislation, must be organized in all Brazilian elementary schools. Teachers and parents have periodic meetings and discuss their children's school problems. In the public secondary schools there is a similar agency, but with a larger function; it is called "Agency for School Cooperation" and it is expected to establish relationships between the school and the community, besides helping the school in administrative problems.

Concerning parents' aspirations in relation to the educational system and educational and social mobility, it may be said that they vary according to social class. In lower and upper-lower social classes formal education is considered as a way of raising social status. Through acquisition of education, it is expected that their children can enter occupations of higher status than their parents. In upper-middle and upper classes, education fulfills the goal of maintaining their already high status.

The occupational guidance of students is almost nonexistent in the Brazilian school system. This situation is even worse in the lower classes than in the upper ones. In the last case, the students generally attend private schools, where eventually they receive some vocational guidance.

As far as educational selection patterns are concerned, the selection of students who want to continue studying is made on two occasions of formal education: 1) after the elementary school graduation, when the students take an entrance examination (Exame de admissao) to secondary school. As we said before, this examination is being eliminated due to the union of both elementary and secondary schools. 2) After the conclusion of the two stages of the secondary school ("ginasio and colegio") there is another entrance examination for those students who want to attend university. This examination is very difficult and usually the proportion of possible admissions is one out of ten students who make an application. The frustration among the students is great, mainly for those who aspire to attend Medical Schools, Psychology, Engineering and Architecture courses.

The official data on promotion and dropping out of school are shown in Table 7.

Table 7

Progress Through the Educational System
(Age-group 7 years of age in 1954)

Approximate Age		No. Reaching this level	Percent of age group
7	Completed a first year of school	1,400,000	74
8	Completed a second year of school	1,000,000	53
9	Completed a third year of school	750,000	40
10	Completed a fourth year of school	500,000	26
12	Entered first year of middle school	300,000	16
15	Completed fourth year of ginasio	150,000	7.9
18	Graduated from middle school	100,000	5.3
19	Entered a university	45,000	2.4
22	Graduated from university	30,000	1.6

Sources: Censo Escolar Do Brazil. INEP, 1965
A Problematica Da Educacao No Brazil.

Jarbas Goncalves Passarinho, Minister of Education and Culture. Revista de Assuntos Militares e Estudos Brasileiros, March-April, 1970.

After graduating from elementary school, students can choose: 1) the academic secondary school intended mainly to prepare students for higher education, with an academic curriculum which includes Portuguese, physics, mathematics, chemistry, biology, philosophy, foreign languages, etc. 2) Other courses which offer technical training, i.e., in industrial, clerical and agriculture schools. The basic curriculum of these schools is similar to the usual curricula of secondary schools plus a specific curriculum, generally composed of practical activities intended to prepare the student for a job.

It can be said that vocational diagnosis in Brazil is in its beginnings. Lack of qualified personnel is great. Schools of Psychology are recent. Graduation of psychologists occurred for the first time in the sixties. The lack of counselors is greatest in public schools where it is more difficult to hire a psychologist or counselor because of limited financial resources.

The relationship between teacher and students varies according to the school level considered. In elementary school, they have a better relationship, as the teacher is with her pupils during three or four hours a day, all the week long. Consequently, this provides a better acquaintance of the teacher with the students and a greater interest regarding their problems. In the secondary level, the situation is completely different. Each subject is taught by a different teacher during fifty minutes, one, two or three days of the week. Thus, the opportunities of rapport between student and teacher are limited.

THE CITY OF SAO PAULO

Demographic Characteristics

The history of the city of Sao Paulo is quite different from the history of the country. This happened because, in the city history, there was unique convergence of many factors which did not have any influence in other Brazilian regions. The impact of foreign investments and the diversified immigration gives the city population a special characteristic.

Considering the most recent history of the city, it can be said only that its "metropolitanization" occurred between the politico-economic crises of 1929 and 1945. During this period the city's socioeconomic and human resources were strong enough to make the city develop, and a need of new planning and of a new way of life was felt.

After 1945, the city was no longer self-sufficient. Because of the inadequacy of urban services and real estate speculation, industries moved out beyond the city limits. The Greater Sao Paulo began to develop. According to Morse (1970), the name of "metropolis" can be given to the city of Sao Paulo from cultural and ecological points of view. This happens because the city is not only a passive receiver of intellectual and artistic tendencies, but an original source of styles, ideas and cultural patterns.

The metropolitan population is around six million inhabitants, distributed in an area of 1,622 km^2. Its demographic density is, therefore, approximately 3,720 inhabitants per km^2, one of the greatest in the country.

The city of Sao Paulo is located in the south region of the country. Its climate is temperate, contrasting with other cities situated more to the north, where the climate is a tropical one.

It was not possible to find precise data concerning the distribution of the population according to age. Social mobility is high, due to industrialization, immigration and educational opportunities (cf. Hutchinson, 1960). However, this mobility is more structural; that is, the result of creation of middle and superior job opportunities as a consequence of an economy in expansion, than a mobility caused by exchange of status, which would be a result of climbing of some and lowering of others on the occupational scale.

The geographical mobility is great because the city of Sao Paulo, besides the great number of immigrants received from various foreign countries-- mainly Italians, Japanese and Portuguese--receives also a large number of Brazilian people who come from other regions of the country, mainly the northeast region. These migrants usually are either semiskilled or unskilled workers.

Therefore, although many data concerning demographic characteristics of the city were not obtained, it can be said that the city of Sao Paulo is not representative of the country as a whole. It is the largest industrial center in Latin America with all the characteristics of the large urban and industrial centers: more work opportunities, more social mobility, more educational opportunities, being the nucleus of foreign and internal immigration.

Although accurate data could not be obtained concerning the distribution of the population according to socioeconomic status, it can be said that the number of industries and industrial workers increased 98 percent and 43 percent, respectively, in the period from 1950 to 1960. The group of skilled and unskilled workers constitute a great part of the city population. Even being one of the more developed centers from the socioeconomic point of view, Sao Paulo city has a great number of nonskilled people with temporary jobs.

At the same time, to the number of people with temporary jobs, one may add the number of unemployed, which corresponds to 15 percent of the labor power of the city.

The industrial area is located mainly in the surroundings of the city (suburbs), with a population predominantly from upper-lower and lower-lower social classes. In general, these areas are not well supplied with public services, such as piped water, telephone, illumination in the streets and houses, sewers, small parks and school buildings. The central area of the city is mainly commercial, and people who live there are generally of the middle class, living in apartment houses. The upper-middle and the upper classes live in residential areas around the central area, where there are better public services.

Educational Structure

The educational structure in the city of Sao Paulo is the same as in the rest of the country. There are no available data concerning the qualifications of the staff of the elementary schools in the city of Sao Paulo. Nevertheless, according to INEP (1965) there is only 3.6 percent of teachers in elementary schools without adequate qualifications in Sao Paulo state. These data are in dissonance with those pointed out for the country as a whole. It can be said, therefore, that the level of preparation is higher than in the other regions of the country, especially the north, northeast and central west regions. Concerning the distribution of the elementary school teachers according to age and sex, there are no precise data available, but it may be said that, as in the whole country, there is a preponderance of females. There are no data also concerning the socioeconomic status of these teachers, but it can be supposed that the majority of them come from the middle social class.

The age of the students at the elementary level of schooling varies from seven to thirteen, but there are no data concerning their distribution by sex and socioeconomic status.

At the secondary school level, 77 percent of the teachers took university courses (Gouveia, 1964, p.33). Concerning the distribution by sex there is a small predominance of females (48 percent males and 52 percent females). More than 50 percent of the teachers have less than ten years of teaching, which indicates that the most of them are still young (Gouveia, 1964).

Around two thirds of the academic secondary school students come from upper-middle and lower-middle social classes; but the students coming from these social classes constitute only 20 percent of the industrial schools.

Concerning age and sex of the ginasial school students there are no data available also. However, it is known that this age varies from 11 to 17 and there is a balance in the distribution by sex.

The Selected Sample

The criterion used for the selection of schools was their location. In other words, a school was considered to have an upper-middle population if it was located in a section of the city where families of high incomes lived. The same consideration is true for the low income sections of the city.

It has to be pointed out that in the Brazilian sample, most of the upper-middle subjects come from private schools, whereas the upper-lower ones come from public schools. Therefore, besides better buildings and equipment, private schools also have better professional resources (counselors, psychologists, and so on). Although it can not be said that the schools in the sample are representative of all the Brazilian school system, they seem to constitute an adequate sample of the city of Sao Paulo educational system.

It seems that, in general, the staff of the schools, as well as the students, reacted to the research with good will and cooperation. It can be mentioned, however, that this attitude was better in the public schools. This possibly occurred because as public schools are supported by public funds, they might have felt that they should cooperate with the community. This is less likely to occur in the private schools which are supported by the students' parents. Although no direct pressure from the parents was observed, there was felt a general apprehension in the school-heads concerning the amount of time spent with the administration of the tests.

Regarding the teaching personnel of the schools, as was pointed out, their reactions were friendly and cooperative. Nevertheless, at the last part of the administration of the instruments, some school-heads began to worry about the students' missing classes. In a very few cases, this worry was obvious; but in no case did it prevent the testers from completing the administration of the instruments.

The students in general and especially those from elementary schools reacted in friendly fashion towards the instruments. In the secondary school the interest was less strong, especially in the upper-middle class.

Referring to the parents in relation to the interviews (Stage II), the attitude was cordial and cooperative, for both social classes involved in the research. Parents answered willingly the various questions of the interview.

No other objection -- except that it was time consuming -- was brought up by the school-heads. No one found any question as controversial, difficult or unacceptable.

In general, school personnel, students and teachers wanted to know the results of the various instruments. Nevertheless, only aptitude and achievement test results were given to school as it seemed that only these could be directly useful for them.

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THE REPUBLIC OF MEXICO

Demographic Characteristics

The Republic of Mexico in the 1971 eleventh general census of population had a total population of 48,313,438 inhabitants. There were 23,873,207 men and 24,440,231 women[1]. The extension of the country is 1,967,183 square kilometers, the density of the population was 23.2 inhabitants per square kilometer in 1967[1].

In Table 1 one can observe the population in 1968 distributed by sex and by age*, with intervals of five years[2].

Table 1[2]

AGE	MEN	WOMEN	TOTALS
0 to 4	4,461,000	4,272,000	8,733,000
5 to 9	3,693,000	3,499,000	7,192,000
10 to 14	3,041,000	2,900,000	5,941,000
15 to 19	2,454,000	2,391,000	4,845,000
20 to 24	1,971,000	1,966,000	3,937,000
25 to 29	1,605,000	1,645,000	3,250,000
30 to 34	1,327,000	1,403,000	2,730,000
35 to 39	1,119,000	1,189,000	2,308,000
40 to 44	943,000	1,004,000	1,947,000
45 to 49	764,000	831,000	1,595,000
50 to 54	616,000	674,000	1,290,000
55 to 59	519,000	549,000	1,068,000
60 to 64	428,000	437,000	865,000
65 to 69	313,000	325,000	638,000
70 to 74	209,000	223,000	432,000
75 to 79	130,000	139,000	269,000
80 and more	109,000	118,000	227,000

* Estimated for June 30, 1968.

In Table 2, taken from the 1960 census, one can see the distribution of the economically active part of the population for the entire Republic.

Table 2[3]

Economically active population	11,332,016
Workers	5,834,424
Employees	1,490,336
Owners and business men	87,772
Work on their own	3,798,311
Help their family without salary	121,173
Economically inactive population	14,441,307
Home chores	9,623,630
Students	2,653,077
Other	2,164,600

In 1960 there were 34,923,119 inhabitants in Mexico. The balance from the data in Table 2 is given by children below twelve.

In Table 3 one can see the economically active population in 1968 as estimated from the 1960 census. In this case the classification is made by type of activity.

Table 3[4]

BRANCH OF ACTIVITY AND SEX	1968
Total	14,861,223
Men	12,000,618
Women	2,860,605
Agriculture, Cattle, Silviculture, Hunting and Fishing	7,391,040
Men	6,573,193
Women	817,847
Extractive Industries	193,019
Men	178,581
Women	14,438
Transformation Industries	2,365,404
Men	1,880,826
Women	484,578
Construction Industry	695,073
Men	661,764
Women	33,309
Electricity, Gas, etc.	59,783
Men	53,562
Women	6,221
Commerce	1,576,947
Men	1,087,593
Women	489,354
Transportation	563,984
Men	527,377
Women	36,607
Services	2,015,973
Men	1,037,722
Women	978,251

At this time the estimated population was 47,267,000. Benitez Zenteno[5], writing in 1961 predicted a population of 49,298,100 inhabitants for 1970, close enough to the actual census figure, and predicts 68,170,300 for 1985.

Educational Structure

Description.

When the Cross-National Research Project was started in June 1965, the educational system prevalent in the Republic of Mexico had the same characteristics as it has today. These characteristics are dictated by the organic law of public education which expresses the rights and responsibilities of the State in regard to education.

Preschool Education.

Below six years of age, preschool education is offered in nursery, day care centers, "casas hogares", kindergartens and similar institutions. It is stated in the organic law of public education, that preschool education has the task of propitiation of the physical, mental, moral, and esthetic development, the socialization in children and the acquisition of the habit of going to school. All of this has to be done in accordance with their age. It is interesting that from the reading of this document one develops the feeling that the child should be over protected. The feeling is also left, that the child is not ready for intellectual, and, in general, of cognitive interests and it is quite stressed that he should not be pushed too hard in this tender age. Whatever the case may be, the actual practice in preschool education in Mexico has traditionally forbidden the teaching of letters and numbers, they must not learn to read before they start the first grade at school. In these centers the children learn to play, to dance, to sing. They carry on with physical excercises, do manual and artistic activities. The teachers, called "Educadoras," who are in charge of this type of education must have a special proparation acquired at specific normal schools. School education may be imparted to all the children below six years of age in the Republic, but it is not obligatory, nor is it a requirement to enter primary school. Certain nurseries, and particularly the institutions called "Hogores," are sustained by the State in order to give some amount of education and a place to live, to abandoned children. In these places, care is given by day and night and a trial is made to provide a family situation for them[6].

It is of interest to indicate that the total number of students at preschool level, 352,021 in the entire Republic of Mexico, indicates, conservatively, that only one out of every 18 children of three to six years of age attend preschool in Mexico.

Primary Education.

From six to fourteen years of age, children should attend primary education. The reason for these limits is that not all children start primary education at six. In a sampling study[7], carried out in 1959, it was found that of 872,672 children then starting primary school, 438,427 were six years of age, 296,450 were seven years of age, 87,687 were eight years of age, 29,230 were nine years of age, 16,702 were ten years of age and 4,176 were eleven years of age. There was also a trend showing, that the poorer the family, the older the child at entrance. The object of primary education is to promote the adequate physical, intellectual, moral, civic, esthetic and social development in the children. It is to prepare them for their own advantage as well as for the advantage of society. Primary education prepares the student to satisfy his own needs, to be capable of utilizing the instruments and elements of work, and to prepare them for entrance to "secondary education," or what in the United States would be called junior high school[8].

The six grades of primary education are grouped in three cycles of two years each and they should be completed in six years, although there are exceptions which are permitted to this regulation. Primary education is obligatory and free for every Mexican citizen of less than 15 years of age. Up to a few years ago, it was monosexual. At the present time there is also mixed sex education. Primary schools in Mexico are classified as urban, semi-urban and rural. The basic subject matter, however, tends to be the same in all of them.[9]

Another classification finds two types, the state schools and the private schools, depending upon who economically sustains them. Although Article 37 of the National Educational System[10], emphasizes that the religious corporations, or groups that in some way or another are related to religious creeds, can not provide education, this article has become more and more flexible, in the measure that such institutions, which by law must apply for permission to carry on with education from the Secretariat of Public Education, must maintain the norms, plans, methods and programs of study that the Secretariat of Education demands in its own schools. The state keeps the right of denying the applications from individual persons or groups to found a school if they do not fulfill the requirements of the Secretariat of Education. As time has gone on, in the entire Republic the number of private schools has been on the increase. This has been encouraged, because the State has found it impossible to maintain pace with the increase of the population and cannot fulfill all the needs of education for the children. Private schools are, however, almost exclusively to be found in the state capitals and in other urban centers, where the population is economically capable of sustaining this type of education. In many of these schools the school population is monosexual. The number of cases in which it is mixed, is far less than for the state schools.

Secondary Education.

Junior high, or as it is called in Mexico -- "Escuela Secundaria" -- is the continuation and broadening of the primary. Its object is to reaffirm and deepen the teachings of primary school and to discover attitudes and vocational orientations in the adolescent on whose interest this type of education is structured. Secondary education takes three years, it is imparted by specialized personnel in each one of the subjects of the programs. These are elaborated by the Secretariat of Education. Private individuals or groups may also provide secondary education, as long as they comply with the usual requirements plus those which specify specialized personnel for teaching the subject matter to be taught at this level[11].

After completing secondary education, the student can, according to his interest, enter into either the normal education to obtain a teacher certificate, vocational education that will prepare him to enter a technical school or preparatory education that will prepare him to enter the university.

Tables 4, 5, and 6 below show the relevant numbers for schools, and for children attending them, plus degree of "desertion," the number of students failing, etc. All of this for preschool education, primary education and secondary education.

Table 4[12]

PRE-SCHOOL EDUCATION (1967)

	Number of Schools	Total Number of Students	Boys	Girls
Total	2,709	352,021	172,558	179,463
a) State	2,126			
b) Private	300			
c) Mixed	283			

Table 5[13]

PRIMARY EDUCATION (1967)

Number and Distribution of the Schools

Primary Education	Urbans	Rurals
40,424	10,055	30,369

	Men	Women	Mixed	Day School	Night School
a) Urban	906	977	8,172	9,690	365
b) Rural	110	34	30,225	30,389	80
Total	1,016	1,011	38,397	39,979	445

Table 5
(Continued)

School Desertion, Percentage Passing			
a)	Students registered		8,159,941
b)	Students at the end of the year		7,494,515
c)	Percentage of those registered	91.8%*	
d)	Students promoted		6,265,269
e)	Percentage promoted	83.6%	
	Urban Schools		
a)	Students registered		5,151,961
b)	Students lost		414,033
c)	Students at the end of the year		4,737,928
d)	Average attendance		4,457,439
	Rural Schools		
a)	Students registered		3,007,980
b)	Students lost		251,393
c)	Students at the end of the year		2,756,587
d)	Average attendance		2,504,241

* A good part of the 8.2% "deserting," actually move to another school or change to a private school. In a longitudinal study we found almost 0% desertion from school for any given school year and a higher percentage of promotion.

Table 6[14]

POST-PRIMARY EDUCATION (1967)

Total of Schools	3,985
Secondary	2,025
Prevocational	20
Vocational	43
Preparatory	268
Business Academics	628
Normal	232
Professional	261
Special Schools	508

Table 6
(Continued)

	Students Registered		
	Totals	Men	Women
Secondary	583,792	362,362	221,430
Prevocational	15,843	13,281	3,562
Vocational	27,569	24,855	2,714
Preparatory	90,191	70,447	19,744
Business Academics	87,726	28,621	59,105
Normal	63,220	25,371	37,849
Professional	133,926	113,905	20,021
Special Schools	108,245	56,522	51,723

The Teaching Personnel in Mexico.

To complete a course of study at the "Escuela Normal," is the minimum requirement for the persons that want to obtain a teacher certificate. The Escuela Normal for Teachers has as its fundamental objective to equip the student with the theoretical and practical knowledge necessary for teaching. It ideally demands that the individual acquires besides teaching technique a good integral cultural knowledge and it intends to infuse the student with the realization of his social responsibility in the practice of teaching[15].

There are five types of Escuela Normal: 1. The Escuela Normal Rural which intends to prepare teachers for the rural schools. It requires that the students should have terminated the primary school and prefers students that come from rural areas. The duration of the course of study is four years. These are divided in two cycles of two years each. The plans of study are similar to the urban normal school, except that there is particular stress given to knowledge applicable to the rural needs.

2. The Escuela Normal Urbana. It equips the teachers for teaching at urban schools. It requires the completion of the primary school. The duration of the course of study is six years divided in three cycles of two years each.

3. The Escuela Normal Superior is directed fundamentally to prepare teachers in the different subject matter specialties. The requirement is that the student will have terminated previously, either the urban or the rural normal school, that he has a teacher's certificate; and that he will have practiced teaching for a period of time no less than four years. This school prepares teachers for "secondary" or junior high schools.

4. The Escuela Normal de Educacion Especializada requires that the students will have terminated the Normal School, and that they have a teacher's certificate. They should also experience of at least two years of teaching. Completion of studies at this school will allow the teachers to practice in the following specialties: Primary Education for Adults, Physical Education, the teaching of border line and feeble minded children, the teaching of the blind, the deaf, etc. In general, prepares to teach in some area of special education.

5. The Escuela Normal de Educadoras. The objective of this school is to prepare personnel for preschool education. The requirements are that they should have completed three years of a normal school. The duraction of the course is a minimum of three years and it gives the degree of "Educadoras."

The Table 7 below reports the number and distribution of teachers in the Republic of Mexico.

Table 7 [16]

	Number of Teachers
Preschool Education	13,758
Primary Education:	
a) Urban	111,669
b) Rural	60,302
c) Total	171,971
Post Primary Education	43,073
Prevocational	1,611
Vocational	2,034
Preparatory	8,912
Business Academics	5,081
Normal	5,728
Professional	15,591
Special Schools	6,064

Description of the Classroom.[17]

The primary school room it is said should never have less than 20 pupils. The actual norm for a group is about 50. This number varies according to several factors. The main one of these is the socio-economic level. In some private schools there may rarely be up to 55 pupils, but the usual is to find from 30 to 40. In the state schools, the groups with least students have 40 and there may be up to 60 pupils in one classroom. In the primary schools, besides the classroom teacher, there are the teachers of "gymnastics" or physical education, that substitute the academic teacher for a period of one hour at a time.

In the private schools, besides the gymnastic teachers, there are often specialized teachers that teach languages, and in some of these schools there is also an extra class called "Moral." This has to do with morality and not with morale.

At the secondary schools, there is one professor for each subject taught. One of these teachers, the one with the most distinguished curriculum vita , will be in charge of the group and will attend to their academic, administrative, and social needs. These are fulltime teachers who are assigned to only one school. In the high schools, the norm is that there will be from 50 to 60 students per classroom.

The number of hours that the students receive classes at the primary and at the secondary schools are:

1. Primary School. In both, the state as well as in the private schools, there is only one period of classes, it can be in the morning, in the afternoon or in the evening. Ninety-five percent of the school population[18] attend the morning and the afternoon school periods. Of these 60% attend in the morning.

The working hours for these periods are as follows: for the first cycle (first and second primary years), four hours, from 8:00 to 12:00 a.m.

The second cycle (third and fourth primary years), four hours and thirty minutes, from 8:00 a.m. to 12:30 p.m.

The third cycle (fifth and sixth primary years), five hours, from 8:00 a.m. to 1:00 p.m.

With slight variations in the entrance time,the private schools work the same number of hours as the state schools, although some times give one half hour more in order to impart the classes of "Moral." [19] All schools work only from Monday through Friday.

2. In the secondary schools entrance time is 8:00 a.m. and the classes terminate usually at 1:30 or 2:00 p.m., that is to say, they work from 5.5 to 6 hours a day including Saturdays. The afternoon period reduces the number of hours for the secondary school, although they never work less than four hours a day in the state schools. Private schools do not have afternoon or evening periods.

3. Below is an analysis of the school calendar taken from the "Agenda del Maestro, 1967." [20]

PRESCHOOL AND PRIMARY CALENDAR		SECONDARY AND POST-PRIMARY SCHOOL CALENDAR	
Working Days	182	Working Days	218
Annual working days	182	Annual working days	218
First period	96	First period	115
Second period	86	Second period	103
Weeks of Work:			
Annually	36 weeks 2 days	Annually	36 weeks 2 days
First period	19 weeks 1 day	First period	19 weeks 1 day
Second period	17 weeks 1 day	Second period	17 weeks 1 day
Hours of Work:			
Daily	5	Daily	6
Annually	910	Annually	1,308
First period	480	First period	690
Second period	430	Second period	618

Note: There are six days in which the work is suspended because they are national holidays[21]. There are two periods of holidays, the 20th to the 31st of May and at the end of the courses. Besides, there are several days which are given in Holyweek and around the 16th of September.

Attitude Toward the School System and the Goals of Education.

The general attitude of the public toward the school system is positive, as far as it is perceived as the solution number one for advancement and development of the individual, the community and the country. Teachers receive a good social recognition from the parents and from the children, but generally they are poorly paid and remain at a very low socioeconomic level. They often have to teach at least two full school periods, the morning and the afternoon, or the morning and the evening, etc., in order to barely make ends meet. Parents often tend to place the entire responsibility, and all the rights, in the hands of the teacher for the information and formation of their children. Most of the time there is an almost complete "hands off" attitude toward the work of the teacher and whatever he decides is fine. From our observations in the field, the average teacher in Mexico could be described as "democratic-autocratic," that is to say, a combination of the two types of teachers. He is affectionate and permissive, but the last word is always his.

The Relationship Between Teachers and Parents.[22]

Generally in Mexico the established norm is that each school whether primary or secondary, state or private, will form every year what is called the "Sociedad de Padres de Familia." The role of this society is to promote and encourage all types of social and other activities which will result in some economic benefit for the school. These groups never intervene in academic problems, the teaching is the exclusive prerogative of the teachers and their organization. They, however, can make suggestions if the case merits it. They are assumed to watch for the strict observance of the legal dispositions and regulations. The Sociedad de Padres de Familia is formed by a President, a Secretary, a Treasurer and a representative for each one of the groups and/or school grades that exist in the school. On the other hand, at the individual personal level, there is often established a relationship between parents and teachers which has as a base the information that the teacher will give to the parents regarding behavior and achievement of the child in the school. When this happens, there is usually cooperation in which the teacher is the leader and has the goal of improving the study habits of the child and his achievement.

The communication between teachers and parents is usually greater in the private than in the state schools. In this case, the grades are reported weekly or at least every 15 days. Usually once a month the teacher asks the parents of his pupils for a meeting in order to change impressions and make plans for better efficiency in the work of the teacher, of the child, and of the parents.

In the state schools communication is much less and often times, even when the teacher calls for the parents, these usually, excusing themselves of their multiple occupations, do not attend the call. In these parents the contribution to the learning of their children is less.

The School Population and Parental Aspirations.

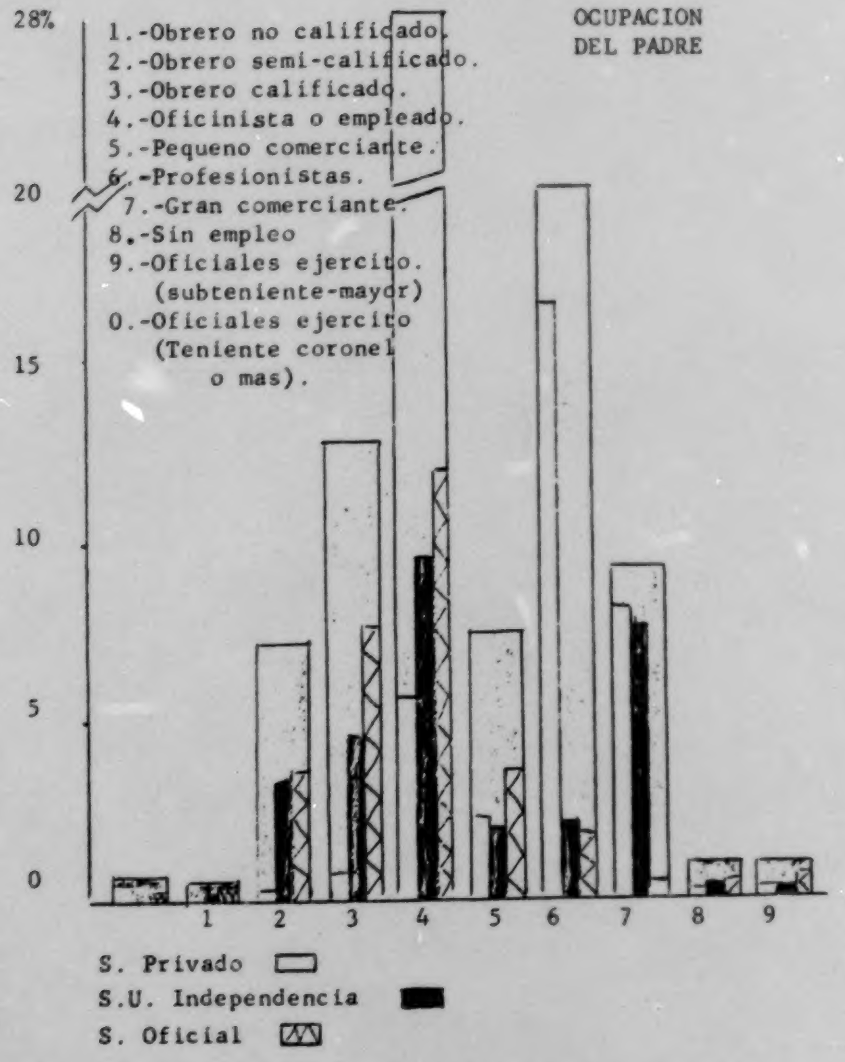
The modal school population for the state schools belongs to socioeconomic groups that go from the middle-middle class downwards, that is to say, the lower-middle, the upper-lower and the middle-lower and the lower-lower. This is particularly true at the primary level. At the secondary level, many of these children may not go on in school with the exception of the middle-middle, the lower-middle and the upper-lower class at times. Most of the time the reason for not going further in school is economical.

At the private schools the modal population is usually represented by the middle-middle, upper-middle and the upper class.

Histogram I on the next page, taken from another study [23] gives a good picture of the composition of the parents by occupation in three systems. The private school system, a state school system within a housing development of the government and the state system in a poor section of the city.

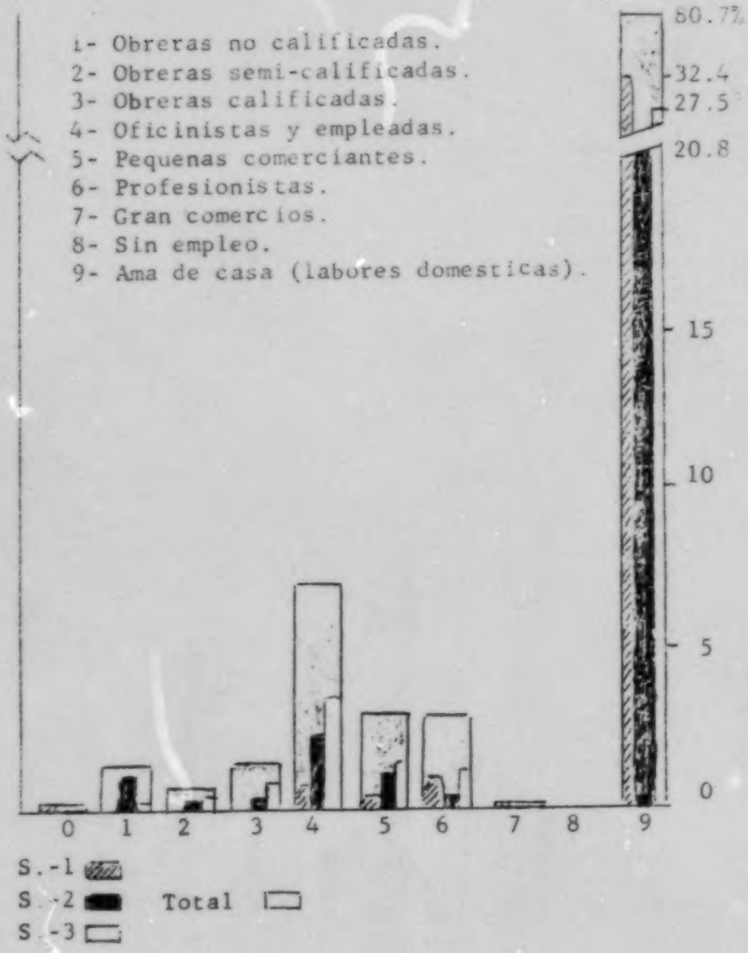
Histogram II gives the same breakdown for the occupation of the mother; one can see the large amount of home labor that is to be found even in an urban center like Mexico City.

HISTOGRAM I


OCUPACION DEL PADRE
28%
20
15
10
5
0
1.-Obrero no calificado.
2.-Obrero semi-calificado.
3.-Obrero calificado.
4.-Oficinista o empleado.
5.-Pequeno comerciante.
6.-Profesionistas.
7.-Gran comerciante.
8.-Sin empleo
9.-Oficiales ejercito. (subteniente-mayor)
0.-Oficiales ejercito (Teniente coronel o mas).
1
2
3
4
5
6
7
8
9
S. Privado
S.U. Independencia
S. Oficial

HISTOGRAM II

OCUPACION DE LA MADRE



THE CITY OF THE CROSS NATIONAL STUDY

Demographic Characteristics

Mexico City or the Federal District, counted, according to the 1970 census with 7,005,855 inhabitants; 3,365,411 were men and 3,640,444 were women. In 1960 the total population for the Federal District was 4,870,876 inhabitants. The population with more than six years of age was 3,938,500. From these 3,285,396 were literate and 653,104 were illiterate.

Educational Structure

The educational system in Mexico City is similar to that in the rest of the country. Up to 1966, Mexico City had the academic calendar "A", which meant that children started the academic year in February and ended it in October. Ever since, there has been a progressive change in order to have Mexico City follow calendar "B", which is the prevalent calendar in the rest of the Republic, and in which classes start in September and end in June. In order to do this, vacations have been made shorter. Also, there has been the sacrifice, of approximately one month of the usual calendar every year. In the following Tables there is the relevant data regarding school population and its distribution in Mexico City as of 1967.

Table 8[24]

PRESCHOOL EDUCATION - 1967

Total Number of Schools	State	Private
653	431	117

Table 9[24]

PRIMARY SCHOOLS - 1967

Total Number of Schools	State	Private
2,134	1,580	554
Registered Students	1,258,403	
Present at the end of the year	1,161,360	(92.3%)
Students promoted	992,859	(85.5%)
Average attendance	1,085,375	
Registered at private schools	136,490	
Present at end of year	130,757	

Table 9[24]
(Continued)

DISTRIBUTION OF STUDENTS BY GRADE

		State	Private
1st Grade	Men	117,753	12,550
	Women	116,101	14,023
	Total	233,854	26,573
2nd Grade	Men	100,203	10,686
	Women	96,826	12,100
	Total	197,029	22,786
3rd Grade	Men	97,467	10,135
	Women	94,878	11,440
	Total	192,345	21,575
4th Grade	Men	93,292	9,748
	Women	89,641	11,355
	Total	182,933	21,103
5th Grade	Men	88,135	9,247
	Women	81,520	10,564
	Total	169,655	19,811
6th Grade	Men	77,481	8,804
	Women	70,088	10,105
	Total	147,569	18,909

Table 10[24]

POSTPRIMARY SCHOOLS (1967)

	Men	Women	Total
NUMBER OF STUDENTS	268,322	124,331	392,653

Secondary Schools	372	Business Academies	57
Prevocational	7	Normal Schools	36
Vocational	11	Professional Schools	40
Preparatories	62	Special Schools	77

DISTRIBUTION OF STUDENTS BY GRADE IN THE SECONDARY SCHOOLS

		State	Private
1st Grade	Men	48,607	7,287
	Women	30,915	6,545
	Total	79,522	13,832
2nd Grade	Men	38,085	6,476
	Women	24,900	5,672
	Total	62,985	12,148
3rd Grade	Men	30,025	6,168
	Women	20,528	5,300
	Total	50,553	11,468

Important Descriptive Facts About the Population of Mexico City From Which Our Sample Was Extracted

It has been seen, that only one out of 18 children obtain preschool education in the Republic of Mexico. It has also been seen that those few that do attend do not get any training that will foster their cognitive and intellectual development. It can be seen from Table 9 that only 92.3 percent of those that start a year in the primary schools in the Federal District present the final exam and from the same Table we learn that only 85.5 percent of all those that start a school year in a primary school get a passing mark. Since these figures are for the entire primary system, it is only between 2 and 3 percent of the children that are lost from the population at any given grade. By the fourth grade, then from 8 to 12 percent will have been lost from the original population. Far more serious than this loss is the controversial data regarding the number of children reported as registered by the Secretariat of Education at any given age, and the estimations made yearly for those same ages and based upon the census. Thus, in the sampling study entitled, "Plan de Once Anos de Educacion Primaria"[7], published in 1959, it is pointed out that in that year the estimated population of children between six and fourteen years for the Federal District was 1,014,277 children and that same year the Secretariat of Education reported only 815,169 as the regular attendance. This is only 80 percent of the total population of children. It has been impossible, thus far, to obtain this type of data for the years during which the study was made. We are, therefore, unable to ascertain the exact percent of the total population of children between six and fourteen years that attends primary school in Mexico. It probably could be stated that the population attending school in Mexico City is certainly more selected than that attending primary school in the industrialized nations, where almost every child gets to go to primary school. However, one should point out that in those countries the number of children that are able to attend preschool education is far greater and that this probably could balance whatever selective process may be in action in Mexico. On the other hand, the part of the population in Mexico that attends high school is certainly much smaller than in the industrialized nations. Thus, we have seen that in the primary schools in Mexico City, there were 1,258,403 children registered in 1967 while, the same year, only 268,322 were attending secondary school. Only about one fourth of the children that go to primary school get to go to high school. However, one must understand that the children that do not go on to high school are of very low socioeconomic status. This kind of a population just does not exist in industrialized nations. Actually, therefore, since in the cross national we were selecting by an index of social class and education, the Mexican children in the study are comparable by these important criteria with the children in other parts of the world. One should still realize that even in these rigorously selected children, probably a much larger proportion of the Mexican children than those in the industrialized countries did not have a chance to have preschool education at all or cognitively oriented preschool education.

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ENGLAND

Demographic Characteristics

The total population of England and Wales as given in the report on the 1966 Census was 47,135,510, there being 22,840,580 males and 24,294,930 females. The distribution by age and sex is given in Table 1.

Table 1

Age	Male	Female	Total
0- 9	4,366,710	4,142,390	8,509,000
10-19	3,958,290	3,837,880	7,796,170
20-29	3,328,410	3,292,880	6,621,290
30-39	3,194,700	3,177,320	6,272,020
40-49	3,336,270	3,458,610	6,794,800
50-59	3,294,530	3,519,420	6,813,950
60-69	2,393,130	2,975,430	5,368,560
70 +	1,447,290	2,611,020	4,058,310

The distribution of the population in terms of socioeconomic level is given in Table 2. The figures are those given in the Census of 1961.

Table 2

Social Class Grouping	Percentage
I	3.8
II	17.0
III	51.3
IV	20.3
V	7.6

The urban/rural distribution was 37,467,805/9,469,895. In terms of education just under two out of every five primary schools in England and Wales were rural. If the child population was proportionate to the total population as shown by the 1961 Census about one in five pupils attended a country school.

In terms of geographical mobility there is a strong trend toward the South-east and London in particular. This is especially so in the case of young people, many of whom present something of a problem in that they arrive in the Capitol homeless and jobless.

While the outward evidence of social mobility is not as clear as in the United States, it is evident that this type of mobility is increasing all the time. Class boundaries are far less ridgid than 30 or even 20 years ago and this is a trend which is expected to continue.

Educational Structure

Description of Structure.

At the time of the Cross-National Project all children receiving State education attended primary school from age five to age eleven. Depending on the decision of the Headmaster some children could be admitted earlier -- that is in the school term in which they turned five. At the age of eleven children entered a secondary school of some type. This varied according to the policy of the Local Education Authority. In some areas there was a system of selection with academically brighter children going to Grammar Schools and the remainder attending Secondary Modern Schools. In a few authorities a small minority would go on to Technical Schools. In other areas, children at the age of eleven went on to a Comprehensive School which accepted all levels of ability. During the time of the project all Local Education Authorities, at the request of the Government, were submitting plans which would eventually result in all areas having a comprehensive system. Whatever the type of secondary school, schooling was compulsory up to the age of 15. It was expected that children attending Grammar Schools would remain until the age of 18 but this was not always so.

Secondary schools are organized as boys alone, girls alone, or mixed schools.

Children who leave school at 15 may attend Colleges of Further Education or Technical Colleges often on a system of day release (one day per week) from their employer.

At the tertiary level students attend Universities or Colleges of Advanced Technology.

There are relatively few state-run kindergartens. The majority of those are privately run.

A number of private schools exist at all levels. These are financially autonomous.

Halfway between the state and private schools are the direct-grant Grammar Schools. These receive a certain amount of aid from the Government and are thus enabled to charge lower fees than do solely private schools. Local authorities are entitled to take up a number of free places at these schools.

Table 3 shows the number of children in full-time education distributed by number and type of school. These figures apply to the year 1966.

Table 3

Type of School	Number of Schools	Number of Pupils
Primary	22,822	4,366,372
Secondary		
Modern	3,642	1,524,382
Grammar	1,273	712,968
Grammar (direct grant)	179	114,919
Technical	150	73,644
Comprehensive	387	312,281
Other	346	193,518
Total	5,977	2,931,712
Independent		
Primary	757	89,686
Secondary	324	83,560
Primary and Secondary	448	135,383
Total	1,529	308,631
Other Independent	1,860	140,878
All Schools	33,582	7,850,262

Table 3a

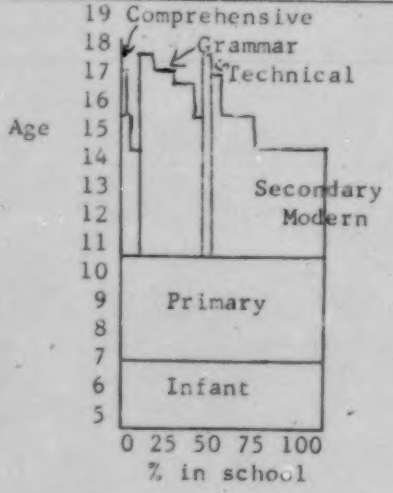

Table 3a is based on data collected in the year IEA Study of Mathematics[10].

Characteristics of Educational Staffs.

In 1966 the distribution of full-time teachers by sex and type of school is as shown in Table 4.

Table 4

School	Male	Female	All
All Primary	36,922	110,451	147,373
Secondary			
Modern	43,050	30,440	73,490
Grammar	24,293	15,716	40,009
Technical	2,906	1,286	4,192
Comprehensive	10,104	6,176	16,280
Grammar (direct grant)	3,293	3,175	6,468
Independent (recog)	10,837	10,703	21,540
Independent (other)	2,026	6,237	8,263

The Plowden report on primary schools[9] indicated that the proportion of females to males in primary schools was three to one whereas in secondary schools it was three to four. A National Union of Teachers Survey carried out in 1962 showed that 40 percent of primary schools had no male staff at all.

There are no national statistics available concerning either age or socioeconomic status of teachers. However some data does exist from certain studies that have been carried out by the National Foundation for Educational Research. Thus "Teachers and their Pupils' Home Background" by E. J. Goodacre[3] contains the following information on some teachers' social class origins.

Table 5
Comparison of London 1960-61 and National Survey Figures 1955
of London Infant Women Teachers and Primary Women Teachers'
Social Class Origins

Social Class Origin	London Teachers n= 96	%	Primary Teachers National Survey n=1449
I Professional Managerial Adm.	13	14	8.8%
II Intermediate	37	39	52.2
III Manual Skilled	40	41	29.6
IV Manual Semi-skilled	6	6	9.3
V Manual Unskilled	0	0	

The Plowden Report stated that in 1966 there were twice as many teachers in training as there had been seven years previously. "They are also better qualified in terms of G.C.E. Passes, although the quality of men applicants is lower on the average than women." In 1965-66 38 percent of trainees had more than one 'A' level, 26 percent had one 'A' level and 27 percent had five or more 'O' levels but no 'A' levels.

Training of teachers varies with the type of school in which the student intends to teach. In 1960 Colleges of Education introduced generally a three-year course for the training of teachers. However, about 3.5 percent of all students in Colleges of Education are in shortened courses. These students are normally over 25. For those planning to teach in primary schools the three-year course offers a general training though some further education in one or more specific subjects must be undertaken. For those planning to teach in secondary schools teacher training is for specific subjects.

The training of graduates is either concurrent in which academic and professional courses take place alongside each other, or consecutive, in which professional preparation follows degree work. Concurrent training has been provided in two undergraduate university courses and in a small number of Colleges of Education. The amount of concurrent training is now increasingly rapid and a four year course for the B.Ed. degree is now becoming established.

Six university departments in England and two in Wales offer one-year post graduate training for primary education. In 1965/1966 there were only some 300 graduates training for primary school work.

The Colleges and Departments of Education are grouped in 20 institutes or schools of education which act as training organizations. All but one of them are university bodies. While they vary in structure they all co-ordinate the facilities in their areas for training teachers and oversee the content of the training courses. They are also responsible for the examination of students and recommend successful students to the Secretary of State for qualified teacher status, subject to a satisfactory probationary period.

Some figures are available as to the qualifications of teachers in Independent Schools. These are given in Table 6.

Table 6

Type of School		GRADUATES Math.	 Science	 Others	 Total	Non Graduates
Primary	Male	106	68	1441	1615	1757
	Female	17	18	336	371	2520
Secondary	Male	473	886	2501	3860	681
	Female	122	195	1069	1386	884
Primary and Secondary	Male	237	470	1550	2757	667
	Female	225	363	1789	2377	3144
Other Indep.	Male	91	116	581	788	1237
	Female	57	63	618	738	5254

Classroom Description

The number of children in a class varies according to the type of school and the area in which it is situated. For example some village schools have very small numbers while heavily populated areas may have large numbers in their classes. The official policy is for a maximum number of 40 children in primary classes and 30 children in secondary school classes. Table 7 presents the 1966 statistics by type of school.

Table 7

School	SIZE OF CLASS Up to 15	 16-20	 21-25	 26-30	 31-35	 36-40	 41-50	 51+
Primary	3896	7368	12519	21665	33674	39242	15561	71
Secondary Mod.	3407	6053	9045	14096	15110	6538	581	33
Grammar	1479	2106	4193	9471	7500	860	214	107
Technical	203	227	522	1199	591	40	8	3
Comprehensive	588	1026	1896	3699	3507	533	81	11
Other Second.	401	708	1166	1981	2143	548	42	4
Total	9974	17488	29340	52111	62525	47761	16487	229

Figures for distribution by age and sex are only available from age 15 on. Before that age there is no sex breakdown. The figures available are given in Table 8.

Table 8

Age	Boys	Girls	Total
2-4			243,500
5-10			4,204,200
11-14			2,620,500
15 under leaving age	110,200	104,900	215,100
15 over leaving age	109,500	103,500	213,000
16	106,100	93,200	199,300
17	62,400	48,400	110,800
18	25,500	14,700	40,200
19+	2,800	900	3,700

Amount of Schooling

School regulations require that "on every day on which a school meets there shall be provided for the pupils: 1) In a school or class mainly for pupils under eight years of age at least three hours of secular instruction, and 2) in a school or class mainly for pupils of eight years of age and over, at least four hours of secular instruction, divided into two sessions, one of which shall be in the morning and the other in the afternoon." In practice most primary schools work for longer hours than the regulations require and secondary schools work for approximately five hours a day. Some schools have one free afternoon per week - devoted to sport - and therefore have an extra morning's school on Saturday.

There is considerable variation among hours of schooling in independent schools.

According to regulations all schools must meet for 400 sessions (half days) in the year. Almost all schools take their main holidays at Christmas, Easter and August (with varying amounts added in July and September). An increasing number of schools have a week at Whitsun and in some areas a full week's holiday is taken in October and February.

Attitude Toward the School System and Expected Goals

The general attitude toward the state school system is positive. However different groups in society perceive the teacher's role in varying ways. Musgrove[7] studies parents' expectations of what they thought the junior school should provide and reported differences in relation to the social class of the parents, e.g., working class parents entrusted the teachers with greater responsibility for behavior training of their children and expected them to encourage pupils to conform to authority and not to challenge it.

Taylor[13] obtained junior and secondary pupils' ratings of the characteristics of a "good" teacher and found they placed most emphasis on the ability to instruct. His conclusion was that pupils perceived a "good" teacher's teaching as "a means to the satisfaction of a need we have in our society: to be taught and to learn."

Within the teachers' ranks there are groups who differ in respect to the goals they seek. One aspect of this is made clear by Barker Lunn in the N.F.E.R. report on Streaming in the Primary School where she was able to identify two teacher types[5].

Type 1, typical of teachers in streamed schools could be described as "knowledge centered." For these teachers the emphasis was on the acquisition of knowledge and the attainment of set academic standards. By contrast the approach of the typical non-streamer was more "child-centered" with a greater concern for the all-round development of each pupil. Their teaching tended to place more emphasis on self-expression, learning by discovery and practical experience.

The attitude of working-class parents that Musgrove reported is now being looked at more closely by educationists. Jensen[4] for example indicates that "in order to break the cycle of poverty and cultural deprivation the state school will have to assume, for culturally disadvantaged children, more of the responsibilities for good child rearing--responsibilities universally regarded among the middle class as belonging wholly to the child's own parents. The brutal fact is that for culturally disadvantaged children these responsibilities are not being met for whatever reason. Whether or not the state school system should intervene where educationally important environmental lack exists is, of course, strictly speaking not a psychological or educational question but one of social policy."

The general goal of education would still seem to be that laid down in the 1944 Education Act -- the affording of every child an educational opportunity suited to his age, aptitude and ability. Just how this should be carried out most efficiently, however, is a question still to be answered.

Parent-Teacher Relationships

The Plowden Report placed great emphasis on the need for a closer relationship between teacher and parent. "Community schools," which remain open beyond normal school hours, "for the use of children, their parents, and exceptionally for other members of the community" are suggested as an aid, particularly in educational priority areas.

However, research done does not always show teachers supporting the Plowden findings. For example, Choen[1] identified and compared the expectations held by students, tutors, experienced teachers and heads in relation to that aspect of the teacher's role concerned with liaison between home and school. He found that the idea of a more diffuse role for the teacher with closer contacts between home and school received little support from heads, who tended rather to emphasize the traditional approach to the role of the teacher.

In Goodacre's study[3] it was found that contacts with parents seldom extended beyond meetings on school premises. Few schools had established parent-teacher organizations and few teachers ever visited pupils' homes. In this study only nine percent of the schools had a parent-teacher organization although some schools stated that they held regular meetings to which parents were invited. Some heads said they had found parent-teacher associations difficult to get going.

The objections to the formation of parent-teacher organizations were similar to those reported by Mays[6] -- parents came for the "wrong" reasons, teacher's anxiety that parents might interfere in the school's organization and particularly, teachers' concern that it was the mothers and not the fathers who came to meetings.

Parental Aspirations for (a) Educational Mobility and (b) Vocational Mobility

One of the best examples of this came from the Streaming Study[5] where parents were asked which type of secondary school they would prefer their children to attend. Table 9 shows the percentage of parents choosing the four different types of schools and the percentage of children concerned who were subsequently allocated to each type of school.

Table 9

School	Preferred Type n=3479 Percentage of Parents	Actual Allocation Percentage of Pupils
Secondary Mod.	22	58
Comprehensive	20	19
Technical	13	1
Grammar	45	20
Other	-	2

As Barker Lunn says, "Clearly the grammar school continues to maintain primacy of esteem over other types of secondary school -- everywhere the choice of grammar school far outweighed the provision of places."

Comparing the choice of secondary school made by parents of children in streamed and non-streamed schools, it was found that the grammar school was the first choice of all higher social class parents, but among lower social class parents the grammar school was the first choice of parents of non-streamed children only; lower social class parents with children in streamed schools showed a clear preference for the secondary modern. It would appear, in the case of the lower social class, that attendance at a non-streamed junior school heightened parents' aspirations for an academic secondary education for their children while attendance at a streamed junior school depressed them.

Information on parents' aspirations for further education was also obtained. University was easily the most popular choice of higher social class parents of boys and girls. Lower social class parents on the other hand clearly favored apprenticeship for their sons and a one-year technical college course for their daughters. Only in the case of lower social class girls did a substantial number of parents express a wish for no further training. Figures are given in Table 10.

Table 10

Type of further training	Higher Social Class Boys	Higher Social Class Girls	Lower Social Class Boys	Lower Social Class Girls
None	1%	4%	4%	12%
Apprenticeship	26%	13%	60%	26%
Tech.College 1 year	7%	29%	5%	34%
Tech.College 2 years	20%	9%	15%	9%
Univ/College 3 years	46%	45%	16%	19%
Number of Parents	928	911	785	763

On the whole lower class parents appeared to demand less of the educational system than higher social class parents. Fewer desired grammar school places for their children, fewer were willing for them to stay at school beyond the statutory leaving age, and their hopes for further education and training were considerably more limited. There, thus, appears to be a pattern of progressive self-elimination of lower social class children by their parents at each stage of the educational system.

Educational Selection Patterns

As mentioned earlier, all children at the time of the Cross-National Project changed school at eleven. The selection procedure varied according to the policy of the Local Education Authority. In those areas with a comprehensive policy all children move up to the secondary comprehensive school in their neighborhood. In other areas children are required to sit for an examination which gives an indication of their academic competence. On the basis of this result they are assigned either to a Grammar or to a Secondary Modern School. Finally children may be assessed on their year's work by their teachers and by a visiting panel and on this basis selection is carried out. Parents have the right to nominate the school of their choice and may also appeal if they feel their child has been wrongly assessed. Unfortunately the percentage of grammar school places is not the same in each area and so children of similar abilities living in different areas may not go to the same type of school.

An indication of the number who drop out of school is given in Table 11. These figures are for state and independent schools combined and are based on the numbers in school in 1961.

Table 11

Boys and Girls Aged 13 in School	821,758	
Percentage of these remaining at school	Boys	Girls
2 years later aged 15	45.4	42.5
3 years later aged 16	26.5	23.3
4 years later aged 17	15.6	12.2
5 years later aged 18	6.1	3.6

When the numbers for independent schools are looked at separately there is a marked contrast as can be seen from Table 12.

Table 12

Boys and Girls Aged 13 in School	66,639	
Percentage of these remaining at school	Boys	Girls
2 years later aged 15	91.5	91.0
3 years later aged 16	74.3	62.8
4 years later aged 17	51.0	34.4
5 years later aged 18	17.6	8.8

System of Vocational Diagnosis

Some comments on the vocational guidance system have been made by Raynor and Atcherley in an article in Educational Research in 1967[11]. "Vocational guidance is the responsibility of the careers master, if the school possesses one, working in conjunction with the Youth Employment Service.* Superficially,it appears that we have a comprehensive guidance system but glaring inadequacies are evident. Personal guidance of the child is often poorly attended to in our schools. The schools grow in size and headmasters cannot know all their pupils; the form teachers work has become little more than nominal with the growth of specialist teaching, and, if to this is added the frequently rapid turnover of staff it is difficult to ensure a continuous awareness of the child's personal needs. Vocational guidance tends to be something that takes place in the final year at school."

As yet there has been little attempt to follow the type of school counseling so familiar in the American educational system. However, this idea is gaining ground and since 1967 trained counselors are becoming more frequent. As yet few teachers are greatly enthusiastic. And yet without such guidance far too much vocational guidance is what has been termed by Super "crisis counseling"[12]. Peter Daws suggests that the "English educational tradition has never properly faced the full implication of recognizing that paid employment is an important part of the adult life for which education is a preparation." He indicates that thinking and planning are essential. And if these are brought to bear over a number of years the crisis counseling that Super deplores should be almost eliminated. As Daws says, "Since occupational choice is the outcome of a developmental process that has extended over many years, vocational guidance can be really effective only if it too is spread over those same years." 2

Teacher-Pupil Relationships

The children in the streaming study evaluated their teachers along two dimensions -- "nice" versus "not so nice" and "good" and "poor" as a teacher. "Nice" teachers were those who were perceived as kind, fair, having a sense of humor and who did not shout or use physical punishment.

A "good" teacher was one who was able to give the pupil many satisfying and few frustrating experiences. Barker Lunn quotes one of the lower ability pupils discussing a teacher. "I've improved a lot with Miss M. 'cos when I had the other teacher, I don't want to be horrible, but well, she just told you the sum and you had to get on with it, but now I've got Miss M., I've improved a lot." She concludes that the teacher "influences the pupil's interests in his school work, his degree of confidence and his self-image."[5]

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* This service was renamed in 1970 the Careers Advisory Service.

Goodacre [3] suggests that among lower working-class pupils favorable teacher attitudes may create the sort of school atmosphere in which these types of pupils are able to achieve a higher level of reading attainment than either they or their teachers may have believed possible.

She also suggests that in middle class area schools teachers tend to over estimate pupils' abilities and attainments. And that this stressing of academic success combined with the teachers' more formal role inhibits pupils' attainment and so helps to explain why they are not as markedly superior to the upper working class pupil as might be expected.

Musgrove and Taylor [8] in a survey of 470 teachers found that teachers in all types of schools saw their work primarily in intellectual and moral terms. They saw parents as being comparatively indifferent to moral and social training but placing great weight on instruction and social advancement. In fact the parents, in general, emphasized the same objectives as teachers: moral training and instruction in subjects.

The Plowden Report has indicated that there has been a change in the traditional authoritarian relationship between adults and children. This change has been reflected in many schools and has led in many instances to a far freer atmosphere which the writers of the report believe can "foster self-discipline, a sense of responsibility for others in the community, and honesty in action and in thought." However they caution against too sweeping a change. Sc[illegible] run on free lines work on two basic assumptions -- "children respond in kind to courteous and considerate treatment by adults and they will work with concentration and diligence at tasks which are suited to their abilities. Neither assumption is true for all children, or for any child all the time, but both are true enough to make them a workable basis for many primary schools." However they do indicate that there are many areas where such an approach is not workable and that the old teacher-pupil relationship based more on authoritarian lines must still obtain.

THE CITY OF THIS STUDY

Overview

London's geographical situation as a seaport, river crossing and communications focus enhanced its attractions as the hub for the political, cultural, commercial and financial life of the country and more recently as an industrial center. London's history has been one of continuous growth despite the many efforts in recent years to check it. Among these efforts have been the Green Belt policy, the movement of Londoners to new and expanding towns and country planning policies. In spite of this London today has a population of approximately 8,000,000. Table 13 gives the distribution by age over a four-year period.

Table 13

GREATER LONDON

Year	Total	0-4	5-14	15-24	25-44	45-64	65+
1965	7948000	632000	983000	1174000	2070000	2101000	986000
1966	7836000	638000	951000	1191000	2010000	2095000	949000
1967	7804000	637000	964000	1196000	1969000	2078000	958000
1968	7763000	627000	982000	1192000	1945000	2053000	962000

Attempts have been made since the early nineteenth century to deal with the problem of London's self government. These included the Metropolis Management Act of 1855; the Local Government Act of 1888 which made London a county and a Local Government Act of 1899.

Further inquiries and Royal Commissions were held up to the second world war but in the meantime London continued to expand well beyond the boundaries of the administrative county and its problems multiplied.

Finally a Royal Commission was appointed in 1957 and produced a report in 1960. It had examined the problems of an area with over 90 separate local authorities, all of them separately elected and sharing in Greater London's local government. Between them there were great discrepancies in size, in resources and in functions, and the spread of Greater London and many of their boundaries meaningless.

The recommendations of the Commission were radical but were finally incorporated in the London Government Act of 1963 when for the first time Greater London was clearly defined as an administrative government area of some 620 square miles. Most local authorities then existing were swept away. In their place the act set up new authorities -- the Greater London Council, the Inner London Education Authority and 32 London Borough Councils. The budgets of the G.L.C. and The I.L.E.A. in 1970-71 totaled £583,000,000.

The hub of Greater London is the City with an area of only about a square mile. The financial and commercial heart of Great Britain is the City of London, containing as it does the headquarters of many great international banking houses, insurance and investment companies and shipping firms. Greater London is a major manufacturing center where clothing, furniture, precision instruments, jewelry and chemicals are produced. Other leading industries include engineering, printing and publishing, food processing and brewing. Trade plays an important part in London's economy. Greater London has a working population of more than 5 million, nearly half of whom are employed in various branches of manufacturing. More than a million people commute daily to central London from suburban districts.

In terms of income, people living in London present a somewhat different pattern to the rest of the country. Table 14 gives the percentage distribution of income in £s per week, as obtained in a 1966 survey of family expenses.

Table 14

	-6	6-9	10-14	15-19	20-24	25-29	30-39	40+
G.L.	1.5	9	7	9	14	13	21	26
U.K.	3.3	9	10	12	16	14	18	18

When it came to spending their income people in London spent slightly more on housing, 15% as against 12% for the whole country and slightly less on food, 26% as against 28% for the whole country.

London is also a center of education and culture with many museums, art galleries, theatres and concert halls. The capitol has long dominated South-east England and, as a natural magnet attracts people from all over Great Britain. For the rest of the country this means a loss of economic opportunities and the G.L.C.'s industrial Center is endeavoring to redress the balance. It has already moved 214 firms out of London and is negotiating for many more. So far, more than 250,000 people have quit London for the new and expanding towns around her boundaries, many because they can then obtain adequate housing. Although half a million new homes have been built in London during the past fifteen years a severe housing shortage still exists. The problem is compounded by the number of immigrants who settle in London. The various relocation programs have eased the city's problems and London's population has begun to fall slightly.

Educational Structure

The educational structure of London is similar to the rest of the country in that in the 20 outer London boroughs the borough councils are the educational and Youth Employment Service authorities for their boroughs. In the Inner London area, which covers the 12 inner London boroughs and the City, education and Youth Employment are the responsibility of the Inner London Education Authority, a special committee of the Greater London Council. The ILEA divisional structure is for administrative purposes, pupils do not necessarily attend schools in the division where they live. Especially at the secondary school level there is a considerable volume of movement across divisional and borough boundaries. Table 15 gives the number of schools, teachers and pupils in Greater London in 1969.

Table 15

Type of School	Number of Schools	Teachers	Pupils
Nursery School	58	166	5395
Primary State	1727	23969	523871
Voluntary	531		135900
Secondary State	527	25499	341577
Voluntary	171		87382
Special	170	1601	16149
Total	3184	51235	1110274
Direct Grant	22	881	13835

In terms of retention rates 55 percent of children in the northern division of England leave school at age 15 compared with 33 percent in Greater London and 38 percent in the Southeast area, generally.

THE SELECTED SAMPLE

It has already been stated that outer London consists of 20 boroughs, each with its own local education authority. In the Cross-National Study, two of these boroughs were chosen -- both of them situated in north London but differing somewhat in their composition. The first borough chosen was Barnet, situated on the edge of the Green Belt with easy access to the City and West End of London by means of bus and train services. It possesses 7,000 acres of open space, a large number of sports facilities, and well equipped children's playgrounds. It has a population (1970) of 316,240 and an area of 22,123 acres. It ranks fourth in population and fifth in size of all London boroughs. At the time of the Cross-National Project a system of selection at age eleven was still carried out and although a number of plans had been proposed to change the borough from this selective system to a comprehensive one, all had encountered great opposition.

The other borough -- Brent -- was an amalgamation, after the passing of the London Government Act, of two former boroughs -- Wembley and Willesden. The merger had not been a happy one and at the time of the study there was still a great deal of friction existing between the two halves. This had made itself felt in the field of education, especially as one of the old boroughs contained a much higher percentage of immigrant children than did the other. The area itself is a center for rail and industry, containing within its boundaries large trading estates. The population in 1970 was 284,460 and the area 10,923 acres. It ranks eighth in population but fourteenth in size of all London boroughs.

In Brent a comprehensive policy had been accepted by the Local Education Authority and this has been implemented in the course of the study. This has led to upheavel and unrest in many schools and has also meant that schools sampled in Stage I of the study no longer existed as entities by the time Stage III was reached.

Schools to be sampled then were taken from what it was hoped would prove to be two fairly dissimilar boroughs, both in terms of the composition of their population and in the educational systems they were following. However it cannot be claimed that they were completely representative either of the City of London or of the country as a whole. It would be most unwise to try to draw generalizations about London or English children from the results obtained in the Cross-National Project.

Some comparisons between the two boroughs and Greater London can be drawn. Table 16 shows the ratio of pupils to teachers in the two boroughs and in Greater London as a whole, in 1969.

Table 16

	Primary	Modern	Grammar	Tech.	Compreh.	J.Comp.	S.Comp.
G.L.	27.2	17.8	15.6	16.2	16.6	17.9	15.6
Barnet	27.0	17.5	15.7	-	20.0	-	-
Brent	27.6	14.2	-	17.5	17.0	15.2	18.6

In terms of immigrant pupils, Greater London as a whole has 108,566. Barnet has 2,602 out of 40,653 students and Brent has 9,543 out of 38,046. These figures apply to the year 1969.

The distribution of pupils by age is given in Table 17.

Table 17

	Under 5	5-8	9-11	12-14	15	16	17	18
G.L.	9138	469333	267013	248597	52799	24987	14558	2136
Barnet	233	11390	10142	9899	2410	1470	918	97
Brent	-	15178	9534	8064	1780	831	451	91

Before any approach could be made to the schools the permission of the Local Education Committee had to be obtained. In one borough the permission was readily given. In the other there was some concern over one of the questions in the Demographic Questionnaire but once the undertaking had been given to delete this question permission was given here also.

Approaches were also made to a number of independent schools, both at the ten- and the fourteen-year-old level, as it was realized that without their participation it would be very difficult to obtain the required number of upper middle class children specified by the research design.

The schools themselves placed no constraints upon the research and head teachers went out of their way to cooperate with the researchers. In the case of some of the larger comprehensives the testing program meant the reorganization of the timetable for a much larger number of children than those involved in the project, but this was most willingly done. In some cases heads of schools had changed from Stage I to Stage III but they agreed to carry on the commitment undertaken by their predecessors even though in one case the new head did not agree with certain parts of the project. He nonetheless made the required classes available. In some schools it was necessary to fit the testing time into a rather rigid timetable, as certain constraints including transport to school lunch had to be taken into account. However in other schools complete freedom of time was given to the testers and in one case the whole lunch schedule was rearranged. Teachers on the whole were interested in the project and keen to discuss it with the researchers.

In Stage II, head teachers facilitated contact with parents and in some cases signed letters of credence to reassure the parents that the researcher was not in fact a salesman. Only one head teacher was reluctant to give parents' addresses, and after some discussion he, too, was convinced of the worthwhileness of the interview. In this case he was given a report of the parents' reactions to the interview (all were favorable).

The results of the Aptitude and Achievement tests for all children were given to the schools as soon as possible after the testing and many indicated that they found these useful. The Local Education Committees also made it a condition of participation in the study that a full report on all children tested should be written. A copy of this will be sent to all schools who participated in the study.

Pupils, on the whole, cooperated well with the researchers. The majority were interested in the study,particularly in its cross national character, though not all were as inquiring as the boy who demanded to know where the finance was coming from. One researcher was interviewed for the school's newspaper and received a fair write up. Inevitably a number of children were not interested and saw no reason why they should attempt any of the instruments. They were not forced to do so as any data collected from them would have been of no value. Reactions to the instruments varied, some enjoying Story Completion immensely and others finding it very difficult. A few children had no difficulty in understanding the projective nature of some of the instruments and indicated they would have preferred to answer a straight question. Reluctantly their results could not be used either. Reactions to the psychological instruments were always more favorable than to the achievement tests, which most children saw as just more school work. However the majority attempted to do their best.

Like their children, the majority of parents reacted favorably to the study. There was one instance where parents felt their rights had been infringed upon when their children were asked what their parents' occupations were. The result was an appeal to the local member of Parliament who then requested information from the Minister for Education in a written parliamentary question. The minister was able to give a satisfactory reply and the headmaster involved was most cooperative in discussing the matter with the parents involved. In the other instance, a child was upset by a Sentence Completion question, but, again, the headmaster involved was most cooperative in discussing the matter with the parent. That both these men were successful is clear from the fact that neither Local Authority had the slightest doubt about allowing the project to continue its work in their respective boroughs in Stage III.

Most contact with parents came, of course, through the interview. The refusal rate was only two percent although it had been estimated that it would be much higher. Parents gave readily of their time and were most hospitable on the whole. It was rare for an interviewer to experience the extremes of being offered a steak for lunch at one interview and to be eyed hungrily by an Alsatian dog throughout the entire period of the next call.

Several parents proved extremely helpful during the trial period of the interview, traveling long distances to be interviewed behind one-way screens and in some cases suggesting questions that could be used to supply relevant information.

Finally in selecting the children for the sample, great efforts were made to take only those children born in England of English parents. It was hoped in this way to obtain a pattern of child achievement and child rearing practices that would be essentially English. This eliminated a far greater number of children than had been anticipated, and meant a much heavier testing program.

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GERMANY (FRG)

Demographic Characteristics

The German research program was run in larger and smaller cities of the FRG: Hannover (525,000 inhabitants - 1969)[1], Mannheim (326,000), Heidelberg (121,000) and Koblenz (106,000).

The results are likely to be typical for medium large cities (100,000 to 1 million inhabitants) in the southern as well as in the western and northern parts of the FRG. All four cities are centers of administration, education, industry and trade.

The socioeconomic structure of the inhabitants implies a variety in which all social classes and levels are represented -- without important differences compared with the FRG average.

The population of these cities has had its proper share of the development of income and welfare since 1955 ("Wirtschaftswunder"). It has access to numerous possibilities of education, employment, consuming, leisure time activities, using mass media and -- according to its SES -- living in comfort available in modern advanced communities.

On the other hand, education and formation are canalized and limited by the three-way school system and by the dual system of occupational formation. And this is true for the FRG in general. From all this many peculiarities will result in the parents' attitudes towards school, in the choice of a type of school, in the children's achievements in school, in professional choice and in occupational training. To use a slogan, this could be characterized as professionalization, without an important increase in social and mental mobility.

Population Structure of the FRG[2]

The population living in the FRG amounts (1968) to about 60 million (total) -- the number of the ten - fifteen years old children is 4.1 million, a little more males (2.1) than females (2.0). The life expectation of a ten-year-old person is 59.84 (males) and 65.47 (females) years -- the figures for the fifteen-year-olds are 54.98 (males) and 60.56 (females).

The age of a first marriage is 25.8 years for the males and 23.3 years for the females, at an average. The excess of birth now amounts to 2.9 per 1,000 persons.

The total population has increased in number of about 5 million since 1960, with a decreasing proportion of the young people (age from 0-25 years: 36 percent) and an increasing part of the older people (age from 60 years and older: 19 percent); the mean scores of further life expectation of the 60 years old are 15 (males) and 18 (females) years.

Thirty-two point seven (32.7) percent of the population live in villages and small towns (with less than 5,000 inhabitants) -- 35.2 percent in towns with less than 100,000 and 32.1 percent in cities with more than 100,000 inhabitants. The internal migration is low and comprises annually five percent of the population.

The Structure of the Educational System of the FRG

According to the federal system of the FRG, the responsibility for school education is a matter of the eleven states of Western Germany. That is the reason why there are many differences from state to state in the curricula, schoolbooks, and in organizational structure of public education. Nevertheless in most of the states -- and in those included in our research program -- the school system can be outlined by Figure 1* on the following page.

It is very difficult to compare the German and the American educational systems, and the translation of the termini is only a preliminary and an additional one. The main difference is the vertical structure of the German system and therefore the early selection for the three branches of secondary education after the fourth grade. At this time the parents and teachers begin and continue for an interim period of two years to decide whether a child will further attend a "Gymnasium" (higher level of secondary school) or a "Realschule" (lower level of secondary school) or a "Hauptschule," which is better named "second period of primary education." Primary education, i.e., "Grundschule" and "Hauptschule" are also known as "Volksschule"; for these types of school are often in the same building and there are no differences in teacher education for these schools. The three branches of German secondary education are highly independent. The selection at the age of ten is therefore also a selection for later professional chances.[3]

Only a "Gymnasium" - graduation ("Abitur") gives the possibility to attend a university or college. With a "Realschul" - graduation ("Mittlere Reife") you are able to attend professional college. Youngsters with a "Hauptschul" -graduation have to begin a professional training. The best of those will find the possibility to attend a professional school or college, even some of them may succeed - by this "second way of higher education" ("sweiter Bildungsweg") - to enter a university.

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*Schools in Europe, S. 87

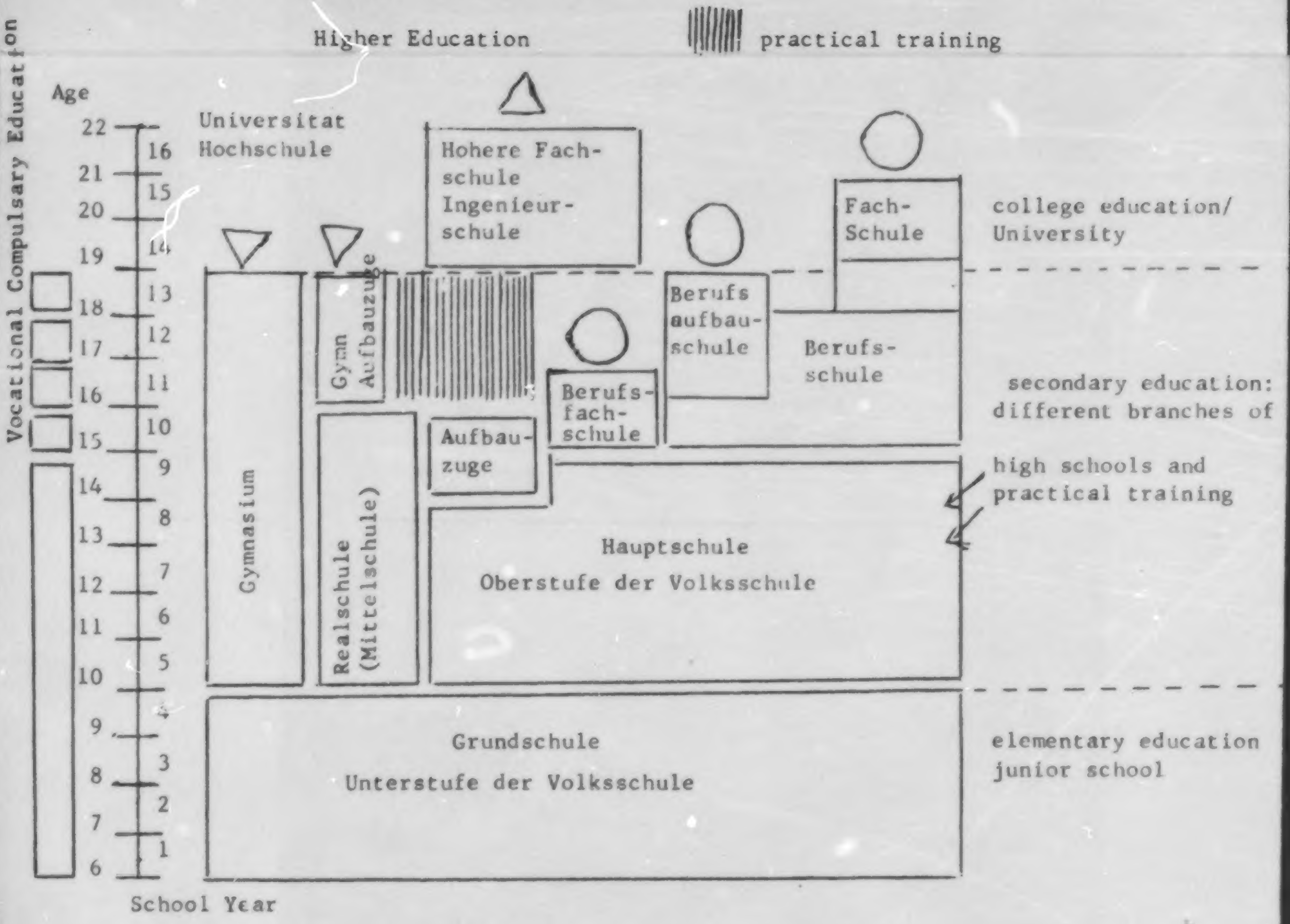
Higher Education
practical training
Vocational Compulsary Education
Age
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
School Year
Universitat
Hochschule
Hohere Fachschule
Ingenieurschule
Fach-Schule
college education/
University
Gymnasium
Gymn Aufbauzuge
Berufsaufbauschule
Berufsschule
Berufsfachschule
Aufbauzuge
Realschule (Mittelschule)
secondary education:
different branches of
high schools and
practical training
Hauptschule
Oberstufe der Volksschule
Grundschule
Unterstufe der Volksschule
elementary education
junior school

Figure 1.

Table 1

The Number of Youngsters Attending the Different Educational Institutions in the FRG/Persons in Thousands

Educational Institution		1968[4]
Junior and primary school level ("Volksschule")		5,873.0
Special schools for mentally and socially handicapped children ("Hilfsschule")		259.1
Lower level secondary schools ("Realschule")		770.3
Higher level secondary schools ("Gymnasium")		1,259.2
Continuation schools for professional training ("Berufsschule")		1,758.9
Professional schools ("Berufsfachschule")		197.9
Professional colleges	)	97.9
Technical colleges	) ("Fachhochschule")	63.1
Colleges for economy	)	6.2

Though the counseling and guidance from the teachers relies importantly upon the GPA and the school achievements of the pupils in the fourth (and the fifth and sixth) grade, the selection decided by the parents is highly determined by their social status. According to the SES of their parents, pupils are unequally represented at the different types of secondary (or primary) education.[5,6] The distribution of girls is even more inadequate than that of boys.

Table 2

Occupation of the Fathers of the Children in the Eighth and Ninth Grades of the Volksschule and Ninth Grade Gymnasium[7]

Fathers Occupation	Volksschule 8th and 9th Grades	Gymnasium 9th Grade
Independent occupations	14.2	25.8
Higher civil servants employees	10.4	38.8
Other civil servants, employees and foreman	24.9	23.8
Workers	35.2	5.1
Pensioners and others	2.7	1.4
No information	12.6	5.1
Total	100.0	100.0

Table 3

Aspired School Leaving Examination (Graduation) for the Pupils of Junior Classes by their Parents According to Father's Occupation:[8]

Father's Occupation	Folks-schule	Mittel-schule	Gymna-sium	Undecided & no Answ.	Total
Independent Occ.	10.7	9.6	44.1	35.6	100
Higher civil servants and employees	4.1	11.4	61.0	23.5	100
Other civil servants employees and foremen	9.3	21.1	33.3	36.3	100
Workers	24.5	14.3	11.6	49.6	100
No information	23.2	16.1	14.3	46.4	100
Total	15.8	14.9	29.6	39.7	100

The reasons for this selection are manyfold: [8,9,10,11]

- Sometimes parents are deciding about their aspirations for the school-career of their children before they are born, following traditions within their SES. That is true especially for their girls. In general changes are being made.

- The childrearing practices of middle class parents are more convenient for the achievement standards required, especially in secondary education. Middle class children are better trained in achievement motivation and verbal intelligence than those of lower classes.

- Middle class parents are less respecting subnormal grade point averages and unfavorable judgments from the junior school teachers. In the case that expectations are low, they prefer nevertheless to send their children (boys) to secondary education.

- On the other hand, lower class parents are likely to respect negative recommendations by school teachers, though these recommendations are not tested to correlate with further school achievement in secondary education.

- Even teachers' recommendations and judgments concerning the selection for secondary education seem to be not independent from the parental status of their fourth grade (and fifth or sixth grade) children.

- For lower class children, even though they have passed into secondary education, there are many obstacles against their success:

  Social conflicts within family, peer group and neighborhood in their residential area may arise.

It is hard for parents to help with school achievement at home, to pay for additional private lessons, to care for separate rooms in their dwelling (especially in families with three and more children), to pay for books and instruments and for the traffic from home to school in rural areas.

Because of these difficulties lower class pupils show a greater part of dropouts at the "Gymnasium" than their classmates of higher social level: lower class members in the fifth grade of "Gymnasium": 20-40 percent; in the thirteenth grade only 10 percent. The ratio of dropouts is greater for girls though their means of GPA are higher than those of boys. But that is true for girls of all social levels -- until now.

Nevertheless it must be marked that since the last five years the differences mentioned above are changing effectively. In the city of Hannover, 50 percent of all pupils are passing -- during the age of 10 - 12 years -- from the "Volksschule" to the "Realschule" or "Gymnasium." In the federal state of Baden-Wurttemberg in cities and in rural areas the ratio is the same, i.e., only one half of the pupils remain at the "Volksschule" (Hauptschule).

Although teachers education is intended to be equalized for all three or four branches, it is still different:

Formation of:

Teachers for primary schools "Volksschulen," (1 - 9 grade), "Volksschullehrer"	Three years studies at a Teacher College ("Padagogische Hochschule")
Teachers for secondary schools of lower level, "Realschulen," (5 - 10 grade), "Realschullehrer"	Four years (combined) studies at a university and at a Teacher College
Teachers for secondary schools of higher level, "Gymnasium," "Studienrate" (5-13 grade).	Four - Six years studies at a university
Teachers for Continuation/ professional schools, "Berufsschulen," (10-12/13 grade), "Berufsschullehrer"	Six years in combination of professional formation with university studies (at Technical Schools, Schools for Economy, etc.)

The salaries and social status of teachers are differentiated according to their degrees.[12,13]

Regarding the distribution of ages within the teachers' staffs, one could say that (in the state of Lower Saxony) the greater part of the teachers is younger than forty years; at the "Volksschulen" the greater part is younger than 35 years. The 50 - 65 years old teachers are under-represented because of war-losses.[14]

The distribution of sex (in Lower Saxony) has been constant for a long time among the teachers of secondary schools: at "Realschulen" females about 45 percent, at the "Gymnasium" females about 27 percent. On the other hand, the proportion of women increases among the teachers of "Volksschulen": females 1950 - 38 percent, 1970 - 60 percent.

There are some reasons for the increasing incidence of women in primary school teaching:

- the increasing trend of female high-school graduates from the upper-middle and middle-middle class for further studies which may be satisfied by a three-year period of studies at the "Padagogische Hochschule";
- the convenient possibility of combining marriage and employment by young women in this profession;
- The general female role-perception which is till now dominant among the female population, is more convenient with the role-perception of teachers, especially in junior and primary school classes, which implies more education and social learning than academic instruction.[15]

The number of pupils per classroom in Lower Saxony* is shown in Table 4.

Table 4

School	Pupils Per Classroom
"Volksschulen"	30.2
"Realschulen"	30.9
"Gymnasien" (5-10 grade)	29.4
"Gymnasien" (11-13 grade)	21.6

In secondary education the teacher-to-scholar ratio is better than in primary schools. See Table 5.

Table 5

School	FRG/1969	Lower Saxony/1971
"Volksschulen"	33.8	31.2
"Realschulen"	26.1	24.9
"Gymnasien"	20.8	18.5

* Niedersachsisches Kultusministerium, Abteilung Statistik.

Schools in the FRG are almost exclusively public schools. See Table 6.

Table 6

	Community Schools	State/Country Schools	Private Schools
"Volksschulen"	99 %	0.001 %	0.6 %
"Realschulen"	79 %	20 %	1.0 %
"Gymnasien"	60 %	25 %	15.0 %
(Lower Saxony 1970)			

The compulsory amount of schooling is nine years (till the age of 15 years) in primary or secondary education and additionally three years in continuation or professional school (till the age of 18 years). The daily amount depends on the lack of teachers which is a crucial problem for all branches of schools. Norms of four to six hours (lesson hours of 45 minutes) per day differ by grades. The German schools till now are morning schools. Children return home at lunch time. There are about twelve weeks of vacation per year.

The vertical structure of the German educational system is a matter of high importance, in as far as it causes marked differences in training as well as in further social and occupational outlook. These differences can be found in all social science surveys in which, besides sex, the level of school education is the decisive discriminating criterion. For example, people with but primary education rather distinctly differ from those with secondary education, in regard to their later participating in politics and their forming of political opinions.[16,17,18,19] Similar differences exist in leisure time habits, too. Those who graduate from "Volksschule" and "Berufsschule" show a lower fund of informations at all - excluded practical professional techniques and experiences. They are inclined to have more conservative (immobilistic, conformistic) attitudes in politics, morales, sex role perceptions, jurisdiction, etc.,-in relation to the pupils or graduates from "Realschule" and "Gymnasium." They participate with lower rates in youth organizations and their activities and facilities. Visiting theatres, reading books, etc. is more rarely spread among working youngsters.

The unequalities in education and personal development have brought on very strong controversies on culture policies and different reform programs in the FRG.

The middle class bias within secondary education will be adjusted by big reform proposals transforming the vertical structure of the FRG school system. By these reforms children of the lower classes will get better chances than they could realize till today, and their aptitudes will become better developed for the welfare of all.

The following Figure 2 shows the new conception favored by the Federal Government:

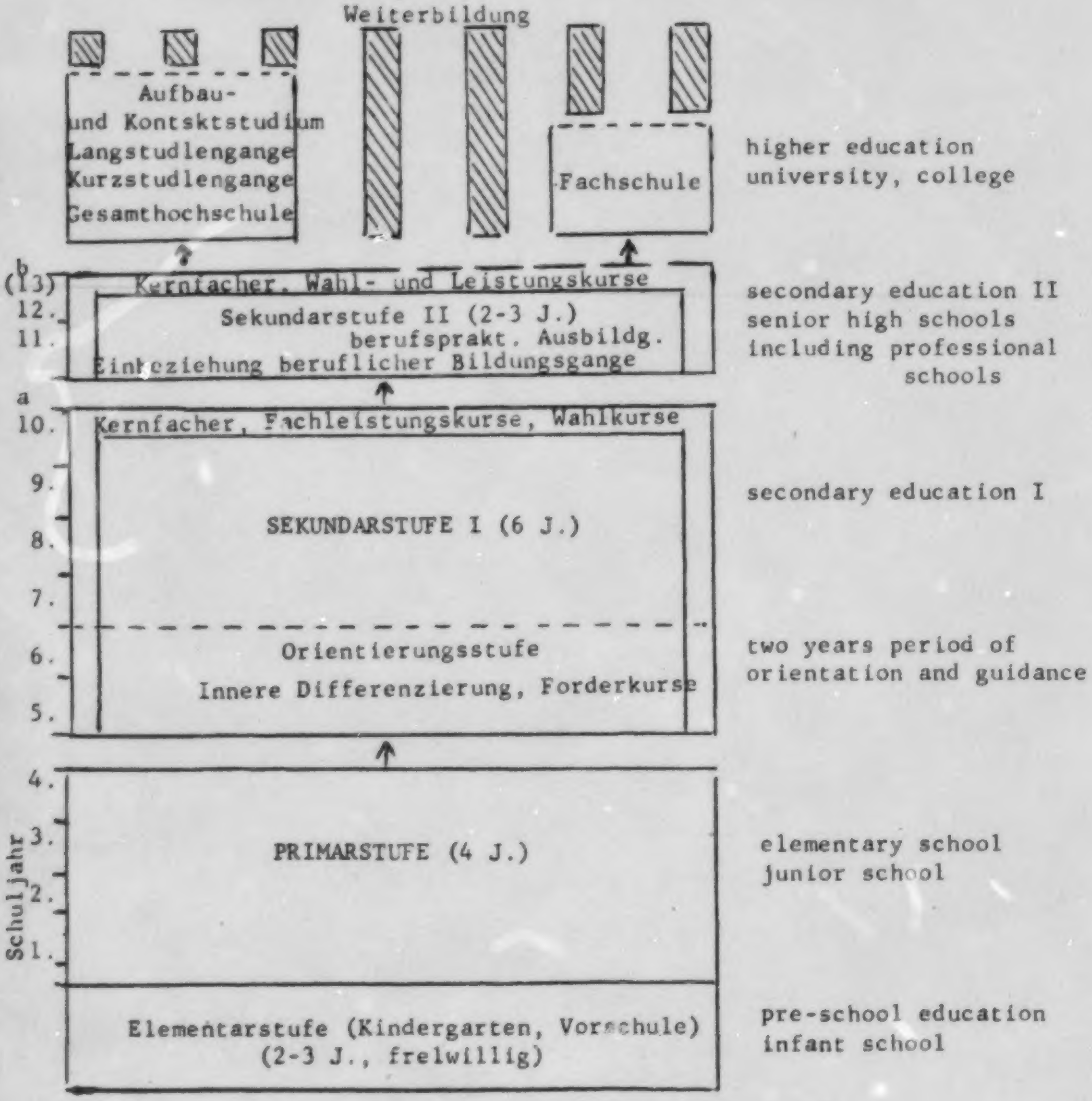
Weiterbildung
Aufbau- und Kontsktstudium
Langstudlengange
Kurzstudlengange
Gesamthochschule
Fachschule
higher education
university, college
b
(13)
12.
11.
Kernfacher, Wahl- und Leistungskurse
Sekundarstufe II (2-3 J.)
berufsprakt. Ausbildg.
Einbeziehung beruflicher Bildungsgange
secondary education II
senior high schools
including professional schools
a
10.
9.
8.
7.
Kernfacher, Fachleistungskurse, Wahlkurse
SEKUNDARSTUFE I (6 J.)
secondary education I
6.
5.
Orientierungsstufe
Innere Differenzierung, Forderkurse
two years period of orientation and guidance
4.
3.
2.
1.
Schuljahr
PRIMARSTUFE (4 J.)
elementary school
junior school
Elementarstufe (Kindergarten, Vorschule)
(2-3 J., freiwillig)
pre-school education
infant school

Figure 2.

The Selected Sample

As informations for the occupational scaling we used the relevant answers in the Occupational Interest Inventory, in the Demographic Questionnaire and the "Klassenbucher" in the schools (diaries, which besides reporting on the daily events contain the pupils' personal data).

The criterion "personal income" is impossible to find out by questions. The readiness of the German students to give information about parents' occupation and income is handicapped by an unfamiliarity of the children with the job of their parents and by a certain tabooism of this question in the Germany society. (The question asked in other countries was not father's income, which is an unwelcome question everywhere, but father's occupation. Edit.)

Concerning the two relevant classes (2) and (4) it was important for us that they have a sufficient social distance (different way of life, different educational aims and techniques) and that each class is relatively homogenous. This means that we did not count children of the upper class (specialist physician, professor) to those of the upper middle class - or mix the children of unskilled and partly instructed workers, etc., of the lower class with those of the lower middle class.

Besides the job status, the educational level of the parents too should be included in the stratification of the two critical levels of our research program, i.e., the upper middle class and the lower middle class. That's why it is necessary to outline the educational levels of the parents, we have used for our sample.

The Six Educational Levels in the FRG

1. Graduation from a "Gymnasium" (age 19) and university degree, postgraduate student, etc., (age 25).

2. Graduated from a "Gymnasium" (age 19) and possibly further special training (e.g., the German official "Inspektor") (age 22).

3. Graduated from a "Realschule" (age 16) followed by professional school or college or/and professional formation on the job (age 18/20).

4. School leaving certificate of a "Volksschule" (age 14/15) and continuation school, attended one day per week, besides the professional formation (apprenticeship under contract) in an enterprise, etc. (age 18).

5. School leaving certificate of a "Volksschule" (age 14/15) followed by continuation school (age 18), with no or reduced or lower professional education or introduction following.

6. "Volksschule" without leaving certificate or special school (age 14/15), continuation school (age 18), no professional formation.

While lower middle class members belong to number 4 educational level, those of the lower class belong to number 5 and number 6 educational levels. The critical weighted score (education/occupation) 25 (according to Havighurst) belongs in the FRG to the lower class and therefore was not included in the sample.

Because the different classes are very unequally represented at the different school types (s.a.), it was very difficult for our sampling to get upper middle class children in classrooms of the Volksschule and upper lower class children in classrooms of the Gymnasium.

Table 7

Sample of the FRG

Upper Middle Class (Obere Mittelschicht)				Upper Lower Class (Untere Mittelschicht)			
Female		Male		Female		Male	
10	14	10	14	10	14	10	14
54	54	54	54	54	54	54	54

N per cell = 54 N per station = 144 Total N (Germany) = 432

Places Where the Research Program was Run: Hannover - Heidelberg/ Mannheim - Koblenz

Hannover, capital of Niedersachsen (Lower Saxony), one of the northern lands of the Federal Republic of Germany, has a 525,201 population (1969). About 75 percent of the inhabitants are Protestants -- about one third are former expellees and refugees from Eastern Germany; 24,595 foreigners are living in Hannover. Since 1963 the city administration has founded, together with several neighboring communities, an association ("Grobraumverband") with an about 1,030,739 population (foreigners: 40,234).

Hannover is a most important point of intersection: Railway lines, highways from Scandinavia by way of Hamburg to south and from West Europe by way of Berlin to East are crossing here. The airport Hannover-Langenhagen (1,922,727 air passengers in 1969) is connecting Hannover with the metropoles of Europe. Besides a waterway ("Mittelland-Kanal") has to be mentioned.

As capital of Niedersachsen, Hannover is an administrative center (ministries of the land; "Oberpostdirektion," "Oberfinanzdirektion," etc.). Moreover, banks, the wholesale trade, insurance companies, agencies of combines (e.g., Preussag, Salzdetfurth) have its head administration in Hannover, and the military district headquarters II (National Defense) has its residence in Hannover.

Twenty five percent of working people are employed in administration, commerce and transportation, but, however, the majority is working in increasing industrial enterprises: mechanical and vehicle engineering (e.g., Volkswagen, Hanomag-Rheinstahl), chemistry, caoutchouc and asbestos industry (e.g., Continental-Gummiwerke), electrical engineering (e.g., Varta, Telefunken), and foodstuffs and luxury industry (Sprengel, Behlsen, Appel, e.g.).

Since 1947, once a year the "Hannover-Fair" takes place in an area of 880,000 square metres.

For years the Social Democratic Pary of Germany (SPD) has the absolute majority of seats in municipality parliament - the Christian Democratic Union (CDU) the minority (opposition).

Five theaters ("Opernhaus," "Theater am Aegi", etc.), four museums ("Niedersachsisches Landesmuseum," "Wilhelm-Busch-Museum", etc.), sculptures in the city ("Strabenkunstprogramm") historical buildings and parks ("Herrenhauser Garten", e.g.) are among other things the cultural attractions of Hannover.

The inhabitants get recreation in different playing grounds, in the near at hand forests, the zoo, around some seas("Maschsee").

Schools

1. Technical University
2. Veterinarian college
3. Medicinal college
4. Teacher college
5. College for music and theater

75 "Volksschulen," partly with special classes to promote foreign children; 31 primary schools promote all children for 2 years in the fifth and sixth grade.
1 Comprehensive school
9 "Realschulen"
18 "Gymnasien"
17 Special schools

Besides there are continuation schools and technical and commercial colleges and an adult college ("Volkshochschule").

Schools administration and teachers -- after some hesitations and questions -- proved to be interested and cooperative. The greatest interest was to be found among the "Volksschullehrer," the lowest among the "Studienrate." Social research is not well esteemed by university trained teachers of the Gymnasium. Some criticised the instruments and items. Some demanded to become informed in a short time about the results of the investigation, especially in their classrooms.

The pupils were sometimes disgusted by the third or fourth session of testing.

From the part of the parents there were some questions about the legitimacy of social research during lesson times, though no research in schools is possible without a licence by the Ministry of Education, which is very difficult to obtain. Among the mothers selected for Parent-Interview there were no refusals.

The subsample of Hannover was selected from two "Volksschulen," one "Realschule," five "Gymnasien." The two primary schools are situated in upper lower class settings in an industrial suburb and in the recent middle class area of the capitol, the Realschule, in a mixed population area in the center of the city. Two of the Gymnasien are especially attended by rural and lower middle class population, the other three are recruited not exclusively and not dominantly by upper middle class people; for a higher rate of social mobility and integration between upper, middle and lower middle class population is typical within the city and the surroundings of Hannover.

The include to exclude ratio was 450 tested to 144 critical cases.

Mannheim lies at the confluence of the rivers Neckar and Rhine, about a dozen miles from Heidelberg. Its population is ca. 332,000, of which 47 percent are Protestant and 42 percent are Catholic.

Together with its neighbor community Ludwigshafen, Mannheim has the second largest inland harbor of Germany. It is southern Germany's most important port of transshipment. Mannheim is an industrial town, electrical industry dominates (BBC, Siemens, AEG; Mannheimer Motorenwerke: Diesel-Motors and trucks, John Deer Lanz, Sunlight). Mannheim has an American and a German garrison and military schools.

At the last municipal election in 1971 the ratio of votes was:

Social Democratic Party	126
Christian Democratic Party	103
Liberals	8
Communists	11
Others	2

Concerning that Mannheim is an industrial and harbor city, the Christian Democratic Party showed up well in the election. Garrison, Military and civil administration and justice courts, located in Mannheim, may be the reasons.

Schools

University
College for music
College for arts
Technical College
10 occupational training schools (one of which is of higher level)
40 "Volksschulen" (at four of which the possibility to be trained at "Realschul" - level)
9 special schools
6 "Realschulen"
1 Comprehensive school
11 "Gymnasien" (8 of which are public ones).

Heidelberg, on the Neckar River, has a 121,023 population (1972). About 55 percent of the inhabitants are Protestant, 36 percent are Catholic. Because of its landscape, its historical buildings and its famous university, Heidelberg is one of the most beautiful and best known towns of Germany. That is why Heidelberg is the center of tourism and of publishing houses.

The American headquarters in Germany and an extensive American garrison have their residence in Heidelberg. In the suburbs of Heidelberg industry is located (textile goods, machines, electric equipments, leather, wood, cement). It is a trading center for fruits and vegetables, produced in the region.

Heidelberg lies near the valley of the upper Rhine. So it is in connection with the great European traffic route (water, rail and road) from the Northsea to Switzerland and Italy.

In the last municipal election, the Christian Democratic Party got 38.1 percent of the votes, the Social Democratic Party 33.8 percent, Liberals 6.1 percent, Communists 2.7 percent and others 19.3 percent.

Schools

University
College for music
6 occupational training schools (three of which are of higher level)
19 "Volksschulen"
3 "Realschulen"
9 "Gymnasien" (five of which are public)

The subsample was selected from two primary schools at Mannheim, one in the center, another in a suburb of the city -- and from two "Gymnasien" at Heidelberg, which can be classified as typical for Gymnasien in this region and even in the FRG.

It was very difficult and took six months of delay to get the licence by the Kultusminister of Baden-Wurttemberg for testing in the classrooms.

Teachers and parents proved very cooperative. Only in one class was some trouble raised by the parents association. No pupils refused to participate and the rate of absence was normal.

Koblenz is a young metropolis in Rhineland-Palatium (Rheinland-Pfalz) with 106,000 inhabitants at the time of the Cross-National Study. As it is Germany's largest garrison town, it houses an additional 30,000 soldiers (10 barracks, Officers School, Central Military Hospital in Germany).

It is a typical "city of officials" or civil servants, which has its effect in a predominance of conservative attitudes. Many civil authorities, local authorities and governmental agencies (e.g., Bundesamt fur Wehrtechnik und Beschaffung; Bundesarchiv; Bundesgrenzschutzdirektion; Bundesinstitut fur Arbeitsschutz; Bundesvermogensstelle; Oberfinanzdirektion; Landesausgleichsamt; Landeskriminalamt, Landessozialamt; Landesvermessungsamt; Landeszentralbank; Landratsamt, Zentrales Arbeitsamt).

Because of its central place Koblenz has become a favored and growing industrial and commercial region and a touristic center (crossing of three rivers: Rhine, Moselle, Lahn; crossing of big railway lines and highways; small airport; neighborhood of France and the Benelux states; not far from Germany's capital Bonn).

Companies: e.g., Kaiser-Aluminum, Procter and Gamble, Dixie Union, Dunlop, Schmalbach-Lubeca, Stabilus, Girling. Industrial harbor and dockyard.

Shopping center for the "Middle-Rhine-Area" (about 3600 square kilometers).

Champagne-, wine- and fruit companies (center of Germany's viticulture region since Roman times).

Two theaters, two open air theaters, four museums, Philharmonic Orchestra.

History

Founded in 9 B.C.
Frankonian time: 5th - 9th century
Electoral time: 1018 - 1793
French time: 1794 - 1813
Prussian time: 1814 - 1st World War

Schools and Colleges

Teachers College
Technical College
School for Social Workers
Commercial College
7 occupational training schools and continuation schools.
4 professional schools

1 College for adult education courses
7 "Gymnasiums"
2 "Realschulen" (secondary schools)
40 "Volksschulen" (primary schools)
4 special schools for mentally and physically handicapped and
socially disturbed children

A University is planned, and its Department of Medicine is at work already.

Selected Sample

1. "Volksschule": the study took place shortly before abolition of denominational schools in Rheinland-Pfalz and the installation of so-called "undenominational schools". The sample was drawn from three primary schools - one Catholic, one Protestant, one undenominational. The parents can be classified as well-to-do middle class, which is representative for Koblenz.

2. "Gymnasium": these are undenominational in Germany. Three were selected for the study. Though one third to one fourth of the classes come from rural areas in Koblenz, the main sample has only children living in the city. The fourteen-year-old pupils are all from so-called "Latin-classes," the attendance of which normally implies a certain prestige, at least in the case of girls (one class).

3. "Realschule": two fifth grade classes were tested.

The "include to exclude ration" was about 1:3, i.e., around 460 children were tested to get the 144 relevant cases of the Koblenz sample.

Teachers' and Parents' Attitudes

Teachers were cooperative and interested, in general. Three exceptions were the director of the "Realschule" and two teachers of a boy's Gymnasium. However, even these people did not refuse testing after some discussion. Among the mothers, three refused to give an interview, five first hesitated and then agreed to do it.

The ten-year-old children showed an appearance of fatigue while working on the Occupational Values Inventory and the Story Completion, the fourteen-year-olds showed a critical attitude toward the Student Questionnaire.

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ITALY

NATIONAL EDUCATIONAL MILIEU

Demographic Characteristics

Italy is a country of 53.3 million inhabitants (1969). The population is subdivided in the following age levels:[1]

0 - 5 years	9.0 %
5 - 15 years	15.4
15 - 45 years	43.9
45 - 55 years	11.1
55 - 65 years	10.4
65 - 75 years	6.6
75 plus	3.6
	100.0%

There is no official classification of the population in socio-economic levels. But levels defined by 1969 per family incomes may be described as follows:

	Percent
Upper class	5 (Income above 3.5 million lire)
Upper middle class	13 (between 2.5 and 3.5 million lire)
Lower middle class	22 (between 1.5 and 2.5 million lire)
Upper lower class	36 (between 1 and 1.5 million lire)
Lower class	24 (less than 1 million lire)
	100

The urban population (in town of at least 30,000 inhabitants) contains 43 percent of the total population. The last 20 years have been characterized by a strong migratory movement from the South and from the East to the central part and the North of the country. This migration has been greater than six million.

Educational Structure

The Italian school system consists of pre-schooling (4 and 5 years of age) elementary school (6 to 10 years of age), lower middle school (scuole medie inferiori, 11 to 13 years of age), higher middle school (scuole medie superiori, 13 to 18 years of age) and the University.

About onethird of the teachers are males. Teachers who teach at the pre-school level have to be graduated with a special diploma (scuola magistrale) which is obtained by attending a course of three years after having received the diploma of the lower middle school. Teachers who teach at the elementary level have to be graduated with a diploma (Istituto magistrale) which is obtained attending a course of four years after having received the diploma of the lower middle school.

Teachers of principal subjects in the middle schools must have a University degree.

Classroom Description

The average classroom size in Italy is 29 students. According to the different school levels, the population of the students in Italy is subdivided in the following way:

		Percent
Pre-school	1.4 million	14
Elementary school	4.7 million	46
Lower middle school	2.3 million	23
Higher middle school	0.8 million	9
University	0.7 million	8
	9.9	100

The ratios by sex are the following:

	Male	Female
Preschool	52	48
Elementary school	54	46
Lower middle school	59	41
Higher middle school	62	38
University	65	35

Amount of Schooling

The length of schooling per year is 210-215 days with four to six hours of teaching per day. Attendance is compulsory to the age of 14.

Ratio of Public to Private School System

Eighty percent of the schools are public or state schools.[1] The general attitude toward the school system is rather positive. There is a more critical attitude among urban than among rural people. Sometimes the urban teachers are criticized as old-fashioned, who train children to learn concepts rather than to see the relations between what they study and the reality around them.

Expectations of the schools are developing. The school is expected to prepare children for real life. The relationship between parents and teacher is generally infrequent and inconsistent; but there is some movement toward a more effective communication between teachers and parents.

The most frequent teacher-pupil relationship is still one which sees the teacher as the authority and exacts obedience and silence from the pupils. However, the younger teachers tend to be democratic and more permissive.

Parents see education as a means for social mobility of their children. A school diploma is regarded as a sure means of getting a job, especially by working-class parents.

Dropouts are common when the end of compulsory schooling is reached. Some children drop out at the end of the elementary school and many more drop out in the lower middle school.

The larger cities have child guidance institutes where children are studied and advised about the choice of courses at about the end of the lower middle school (age 13).

Those pupils who will complete the middle school and go to the university are generally sons and daughters of professional people and owners or managers of industry and business.

THE CITY OF MILAN

The area around Milan, in which this research was carried out, is the most industrialized area in Italy, reaching high social and economic levels, and receiving considerable numbers of immigrants from the southern and eastern part of the country. In this area, the arrival of people from underdeveloped agricultural areas is particularly common, and the process of assimilation of such groups into the existing population is continuous. Milan is usually considered to be the most "European" of Italian cities because its geographical position allows more contacts with central, northern and eastern Europe than any other city in Italy; it is a city which, though facing the future, is still weighed down by the problems of the past.

This is due to factors of two historically and socially contrasting kinds; the elementary needs of the underdeveloped regions of Italy, and the advanced social outlook of more advanced European countries. This kind of conflict, linked also to the very limited autonomy which the rigid structures of the State permit to local authorities, is reflected at all levels of society; in the family, where equality between man and woman and recognition of the rights of children are still held up by the remains of a pyramidal authoritarian structure; in the school, where the introduction of the ideas and methods of modern psychology and pedagogy is obstructed by a still largely aristocratic and conservative organization.

Milan is a city of 1.8 million inhabitants, located in the middle of the Padana valley in the region of Lombardy. The average temperature in the last five years has been 14.2 degrees centigrade, or 57 degrees Fahrenheit. In Milan it rains 80 to 95 days per year. The climate is typically continental, hot in the summer (up to 36 degrees centigrade or 97 degrees Fahrenheit) and cold in the winter (down to minus 14 degrees centigrade or 7 degrees Fahrenheit). Milan is not representative of Italy, where most of the regions have less extreme temperature, being more temperate in all four seasons of the year.

Dominant economic activities are industry and commerce. Milan has numerous industries (mechanical, steel products, textiles, rubber, foods, chemicals, pharmaceuticals, automobiles, and so on).

The standard of living measured as per family income is the highest in the State (more than 2.0 million lire per inhabitant). The habits of Milan citizens are also different from those of the majority of the Italian people. A Milanese can go to the sea (150 kilometers), to the mountains (very numerous and very near -- as the Alps), to several lakes (Lago di Como, Lago Maggiore, Lago di Lugano, Lago di Garda) all situated in a range of 50 to 100 kilometers. This favorable geographical position is such that the Milanese weekend has the greatest variety in Italy.

Also, the people cannot be considered as representative of the rest of the country. Milan has had French, Spanish and Austrian influence, being dominated by foreigners for many centuries. The mentality of the people is more near to that of central Europe than to that of Rome, even though in interpersonal relationships the average Milanese is communicative, as are the other Italian people.

Two years ago there were about 7,000 teachers in Milan of whom over 60 percent were females.[2] Milanese teachers have the usual training but have more occasion to improve their knowledge through special courses, conferences, meetings. The average classroom size is, in Milan, 27 students. The Milanese students are about 360,000 of whom half are concentrat[illegible] the lower and higher middle schools. University students represent 6 percent of the total population of the Milanese students.

Public and private schools represent 86 and 14 percent of the school enrollment, respectively. The attitude toward the general school system is much more critical in Milan than in other big cities of the country. Old teachers of the secondary schools are sometimes criticized as having begun their teaching during the fascist period and maintaining some of the methodological lines of that ideology. Some of the teachers are seen by psychologists as rigid, insecure, suspicious and somewhat unadjusted people. In Milan, as in other parts of the country, teachers are losing a bit of their prestige based on an authoritarian conception of interaction with students and parents. The expected goals of the educational system are the same for Milan as for the rest of the country.

The parent-teacher relationship appears to be quantitatively and qualitatively different than that in other big cities. There are several examples in Milan of parents and teachers discussing school problems even outside of school.

The parental aspiration for educational achievement seems to be very strong among middle class small business men, (employees) while in the working class the general aspiration is much more oriented to the social mobility of their children.

Pupils are selected in the same way as in the rest of the country but the teachers are aided by the two principal child guidance centers of the State which maintain a pool of specialists for educational guidance.

Males are kept in school a little longer than females. The highest percentage of dropouts is in the lower middle school where two years ago it was 25 percent.

Teacher-pupil relationships are generally more open and equalitarian than in other parts of Italy.

THE SELECTED SAMPLE

The schools from which the final sample was drawn are located in the center of the city where upper-middle class families are prevailing and in the extreme suburbs, where there is a majority of upper-lower class families. These schools were all public (to the complete exclusion of private schools). Almost 90 percent of upper-middle class children were drawn from central city schools, the other 10 percent from suburban schools, while 65 percent of the upper lower class came from suburban schools, and the other 35 percent have been selected in the schools of the center (janitors' and chauffers' children) or middle center of the city (small dealers' children).

The number of the schools in the city is large enough to permit every boy or girl of a given area of the city to attend the school of that area. This is true at the level of primary schools and the lower middle. The rule is that every child should attend his own neighborhood school, except in unusual circumstances.

We selected our sample in the schools which presented the major concentration of social classes required; thus it is impossible to answer the question of how representative the sample schools are of both the city and the nation.

In Milan, as in many other European cities, upper-middle class families occupy apartments in residential quarters close to the business and cultural activities of the city. The working class people who live in this area are in service occupations, such as janitors and chauffeurs or they are small shop-keepers. Suburbs, or outlying sections of the city, are generally structured around heavy industry, and are centers of working-class populations.

Teachers interested in the declared aim of the research -- a deeper knowledge of children's social behavior -- were really cooperative. About 30 percent of the teachers were of this type.

About 20 percent showed resistance to leaving the class in our hands, and criticized in a general way our questionnaires and methodology.

The other 50 percent of the teachers were not especially interested to cooperate with the research team but showed no hostility to the project.

As regard to specific controversial or unacceptable aspects, we may mention Teachers' BRS. About 50 percent made some criticism but completed the inventory giving answers not always corresponding to questions. Only about 5 percent were fully cooperative. The Occupational Values Inventory and Occupational Interests were criticized principally by teachers of fifth grade children. The first one for its length, the second for the difficulties met in the first four items by ten-year-old children.

During this phase of the study, contacts with parents were avoided. School principals and teachers, even if sometimes critical toward the research aims and methods, were asking for study results immediately. They were interested in practical effects and implications.

The students in the Milanese sample are probably quite representative of their social classes. They come from parts of the city where their own social class tends to predominate. Thus they attend schools which are relatively homogeneous for social class. The lack of students in private schools tends to eliminate some upper-middle class students whose parents wish them to associate with upper-class youth.

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YUGOSLAVIA

SLOVENIA - NATIONAL EDUCATIONAL MILIEU

Demographic Characteristics

Slovenia is one of the six republics of Yugoslavia and it lies in the north-west of the country. According to the statistics made in 1967 there are about 1.7 million inhabitants (in Yugoslavia there are about 20 million). Out of the whole population 38 percent live in towns. Slovenia is the most industrialized republic in Yugoslavia and it has the highest national income per capita. Out of the female population in Slovenia there were 40 percent women employed in 1968. Industry is much more important than agriculture for Slovene economy. Thus, only about 30 percent of the adult population are employed in agricultural activities. Industry is not only oriented in different centers, but it has also spread to the country as a whole.

The Slovene language is the official language in Slovenia and it differs from Serbo-Croatian and Macedonian languages.

The people are not grouped into socioeconomic classes. However, social differences which are based on man's work, still exist. Jobs which require higher qualification are, in general, better paid than jobs which do not require much knowledge and skill. According to the statistics there are 5.3 percent of the employed population who are university or high school (college level) graduates, 10.9 percent who are middle school graduates, 14.7 percent who are highly skilled, 26.1 percent are skilled workers, 12.9 are semiskilled, and 30.1 percent are unskilled workers.

It was observed that mobility has been increasing in years. The main reason of migration is economic changes, especially the growth of industrialization. The migration involves mainly younger population. In 1969 there were about 4.0 promile of inhabitants who newly registered in Slovenia (coming from other republics of Yugoslavia), and about eight promile of inhabitants of Slovenia left Slovenia and went abroad (to Western Europe), because of economic reasons.

The Structure of the Slovenian Educational System

The pre-school education in Slovenia is not compulsory. There are only about 15 percent of the children from ages three to seven who are in kindergartens.

The elementary (primary) education for all children is compulsory and uniform. It lasts eight years. The children start the school at about the age of seven. However, if the child's readiness for school is satisfactory, he may be accepted before the age of seven, usually six months earlier. The elementary school consists of the lower grades (from one to four) and the upper grades (from five to eight). In the upper grades of elementary school the teaching of different subjects requires teachers who are specialists in the subject they teach. In the first four grades the classroom teacher teaches all subjects which are required by the curriculum.

The children who completed eight years of elementary school may continue their schooling at secondary schools: gymnasium (four years), technical and other middle schools (four years) and later on at the university. Many children from the "working class" parents, especially after they finish primary school, continue their schooling at the schools for skilled workers (for three years). The secondary age range is from fifteen to nineteen. It should be noted that all schools are public schools. There are no private schools.

Characteristics of Educational Staffs

The profiles of teachers now teaching in Slovenian schools are varied. In elementary schools there are combined-subject teachers (from grades one to four), single-subject teachers and special-subject teachers (from grades five to eight).

Combined-subject teachers are trained at institutions whose sole task is to prepare teachers for elementary schools. These institutions are called "Pedagogic Academies." In Slovenia there are two such post-secondary schools which were established in 1964. Single-subject teachers for elementary schools are trained also at these two-year post-secondary schools, but also at the university level. Special-subject teachers (such as musical education, physical training) are trained at corresponding higher academies (university level) for four years.

In sum, all elementary school teachers, both single-subject and combined-subject teachers, are required to have at least two-year post-secondary qualifications. This applies also to those who already work as teachers without sufficient qualifications and who will have to acquire this by full-time or part-time study.

Statistic show that there are about 50 percent of teachers with unappropriate qualifications (e.g., in mathematics 61 percent, in physics 56 percent, in foreign languages 49 percent and in native language 47 percent).

Teachers in Gymnasium are required to possess graduate degrees from universities, obtained mainly at faculties of arts, natural sciences and mathematics. In technical schools, general and technical subjects are taught by teachers with corresponding university backgrounds. In schools for skilled workers, general and specific subjects are taught by graduate teachers who obtained qualifications at appropriate faculties or two-year post-secondary schools. However, practical skill training is conducted by instructors with varied educational backgrounds; they are usually highly skilled workers in appropriate occupation and trade.

A majority of teachers in elementary schools are women. There were 78 percent of women teachers and 22 percent of men (for the academic year 1969/70). In gymnasium the picture is somewhat different. In the school year 1967/68 there were about 50 percent of women teachers and 50 percent of men teachers. The situation is similar for technical and other middle schools.

Classroom Description

In Slovenia, at the elementary level the norms required 35 pupils as a maximum and 16 pupils as a minimum per class. However, available statistics show that the number of pupils per teacher was 29 in 1964/65 and 27 in 1968/69.

It should be noted that all classes involved pupils of the same age. However, there are in classes some children who are older. These are those children who cannot fulfill the demands of the curriculum and must therefore go to the same class again. The classes in our elementary and secondary schools are mixed with regard to sex (the proportion of boys and girls is equal) and socioeconomic status of their parents. There is also no streaming; all classes are of mixed ability.

Amount of Schooling

In the lower grades of elementary schools the hours per day vary from three to four in the first grade (22 hours weekly) and from four to five in the fourth grade (26 hours weekly). In the upper grades the hours per day are from five to six, including Saturday (29 hours in the fifth grade and 32 hours in the eighth grade weekly).

Two thirds of the elementary schools in Slovenia have two turns: one in the morning (usually starting at eight o'clock) and one in the afternoon (usually starting between one and two o'clock). The children in these schools have lessons one week in the morning and the next week in the afternoon. The remaining schools (one-third) have the lessons every day only in the morning. Schools which work by turns decrease with years, thus the shortage of school buildings is still heavy.

The elementary schools work in two terms. The school year (first term) starts in the beginning of September and lasts until the middle of January. The second term begins in February and lasts until the middle of June.

Attitudes and Goals of the School System

The elementary schools in our country are uniform in regard to the curriculum. The demands of the curriculum are the same for all children irrespective of their abilities and environmental conditions in which they live. It was believed that uniform standards will cause greater performances by children and equal opportunities for their further schooling. But in reality we faced also many troubles, though we still believe that one of the advantages of a uniformly based school system is to prevent early selection which would be predominantly socially based.

The curriculum is very extensive and for many children, especially those from "working class" families, very demanding. If the child wants to fulfill these demands he must study at home every day from two to three hours on the average. Many children need also extra help from their parents. However, the parents with less education are not able to give appropriate help to the child. Therefore, the parents and society representatives frequently criticize our elementary school and demand that the school work should be made more appropriate, so that children could learn and grow according to their abilities. It should be noted, again, that the uniform school system will remain in the future but some inner improvements in regard to the classroom teaching.methods and flexibility of curriculum will be necessary for the good of the individual child as well as for the society as a whole.

In summary, the goals of elementary schools are to give all children, irrespective of sex and socioeconomic status, a basic general knowledge in social and science subjects and the full development of their personality.

Parent-Teacher Relationships

The representatives of the parents are elected in the "School Council" which is the highest body of self-government in every school. In the school councils the vital problems of management are discussed and also new teachers are elected.

The parents may contact teachers, as a rule, once monthly. These are official Teacher-Parents meetings. At these meetings the general educational problems and classroom discipline are discussed. The parents receive here, also, all information about the achievement of their child at school. However, it was observed that some parents, especially those whose children are less successful at school, do not attend these meetings regularly or not at all. The need for a stronger link between school and home at the elementary level is particularly important and should receive still more attention by all those who are responsible for schools.

Educational Selection Patterns

The last evidence (for the academic year 1968/69) shows that there were in the lower grades of elementary school in every grade, on an average, 7.6 percent of the pupils who stayed in the same class for the second year. From the fifth to the seventh grades there were 14.1 percent of the pupils who stayed in the same class for two years. These children did not meet the demands of the school curriculum.

Due to the reason cited above, a large number of children cannot complete in eight years all of the eight grades of compulsory school. Naturally there is a good deal of variation from year-to-year but the proportion of those children is very high (about 33 percent in the year 1967/68 and 42 percent in the year 1968/69). Some of these pupils stayed in elementary school one or two years longer and so completed all eight years of the elementary school. Some pupils can complete the grades which they did not pass in special evening courses, which are organized for adults, with less than eight grades of elementary school. However, pupils with less than eight grades cannot continue their schooling at schools for skilled workers. They remain unskilled or semiskilled workers. It is obvious that many children are exposed to be under academic press.

The elementary graduates who are less intellectually competent and less successful at school usually enter schools for skilled workers. More successful pupils, on the other hand, want to continue their schooling at gymnasium and other technical schools. The outstanding pupils with excellent marks are accepted, as a rule, without an entrance examination. For all other candidates the entrance requirements are necessary. The applicants must show, at their entrance examination, the adequate knowledge of native and foreign language and mathematics. The examination is of the essay type and oral. All candidates who pass these examinations are accepted irrespective of their socioeconomic status and sex. In Slovenia, at the present, no entrance examination is required for gymnasium graduates to study at the university except at the medical faculty. All other candidates who complete technical and other middle schools must necessarily pass the examination requirements, which differ from faculty to faculty.

It should be noted that pupils in the eighth grade of elementary school are tested every year with some DAT tests (American test). This testing is carried out by psychologists working at schools and psychologists who are working in institutions for vocational orientation. In situations where the pupil cannot decide what to study or what occupation to choose, they help him to select the adequate school of profession which will be suited to his own capacities.

Teacher-Pupils Relationships

Scientific studies about these problems are not being made as yet. But observations indicate that teachers paid too much attention to their teaching (lecturing) which is equal for all pupils and so they neglected individual differences among children. One of the shortcomings of teaching is also that teachers mostly demand facts and do not sufficiently stimulate the creative processes in children. Some teachers also tend to be too autocratic in their relations toward children so that the children cannot take an active part in classroom decisions and in the learning process.

LJUBLJANA AS THE CITY OF STUDY

Ljubljana is a political, economic and cultural center of Slovenian Republic. It has about 210,000 inhabitants. Slovenia has one university with all faculties which is located in Ljubljana. The city has also several gymnasium and other middle schools. There is in this city the highest proportion of people with the highest education and qualifications in comparison with other cities in Slovenia which are also much smaller. Because of these conditions Ljubljana cannot be wholly compared with other cities in Slovenia.

The elementary schools in Ljubljana have the same curriculum as in other cities and villages in Slovenia. The schools in Ljubljana as well as in the other cities offer, in general, richer opportunities for learning than schools in rural areas. The teachers in city schools have adequate qualifications whereas many teachers in villages are still inadequately qualified.

Single subjects, especially mathematics, native and foreign languages, are still taught by teachers without required qualifications in village schools. However, this situation will be changed. It should be also noted that city schools have more favorable conditions for this work: more school space and laboratories and are better equipped with teaching aids in comparison with village schools. Among the elementary schools in Ljubljana and schools in other cities in Slovenia the differences are very small in these respects.

THE SELECTED SAMPLE

The schools from which the final sample was drawn is representative of the city of Ljubljana and other cities in Slovenia as well. But the sample is not representative for schools in rural areas or for the nation as a whole. Four of the schools were chosen from the city center and the remaining seven were located near the center.

The research was done according to the agreement with the headmasters at schools. The authors of the research had no difficulties in coming to an agreement because they had been in contact with the headmasters. Some constraints arose only in regard to the testing period. The children were tested at the end of the academic year so that it was difficult to find enough time because the pupils had examinations in all important school subjects. There were some reactions from the teachers saying that the testing should be done earlier and not at the end of the school year. No reactions from the parents were registered.

It should be noted, however, that it was most difficult to classify the children in regard to socioeconomic status because the official statistician used other criteria which were not appropriate for our research. Therefore it was necessary to adjust the criteria for socioeconomic status of parents to our social conditions.

The headmasters and teachers were also interested in this study. They wished to have the results and therefore we were asked to publish them. In addition, the pupils who participated in the study were interested to take the tests, too.

Finally, the children who were selected for the final analysis were somewhat older because most of the children start going to school at the age of seven. Many children were still older therefore it was necessary to test twice as many children to get the required sample of the appropriate age. Furthermore, in the fourteen-year-old sample only those pupils were included who progressed regularly from the first to the eighth grade. Thus, the pupils who had re-attended one of the classes were not selected in the sample because they were one or two years older. Therefore our sample of fourteen-year-old children is in regard to this respect to some extent more selected and not wholly representative for all children of this age.

CHICAGO (Metropolitan Area), U.S.A.

The Cities of this Study

The cities from which the Chicago Station sampled are all within the Chicago metropolitan area but not within the city of Chicago proper. Stage I data were collected in school systems in two cities -- Gary, Indiana and Flossmoor, Illinois. Stage III data were collected in three systems -- Gary, Hinsdale, Illinois and Evergreen Park, Illinois. All of these cities are influenced by the happenings in Chicago as the area is integrated economically, loosely politically, and within, for the United States, a small area. As a group the cities sampled could be thought of as representative or urban midwest United States, and the nomenclature of Chicago used to describe the total sample is a convenience which locates the research staff and in a general way the cities.

Gary -

1970 Area Population - Gary 182,000, Lake County 546,253, Porter County 87,114.

Location: Gary is 30 miles southeast of Chicago, 165 miles north of Indianapolis, 240 miles southwest of Detroit, Michigan, 280 miles northeast of St. Louis, Missouri, 210 miles west of Toledo, Ohio.

Climate: The annual normal temperature for Gary is 51.7 degrees. Normal annual precipitation is 26.9 inches, normal annual snowfall is 41.4 inches.

Recreation: Gary's location on the shores of Lake Michigan means that water dominates much of Gary's recreation. Beautiful beaches at Marquette Park, Lake Street in Miller and Miller Beach provide sand and swimming during the summer months.

Gary is only a few minutes away from the massive new Dunes National Lakeshore Park which is being formed by the Interior Department of the Federal Government. Gary is ten miles from the well-known Indiana Dunes Saata Park which features swimming, hiking, camping and a chance to walk through centuries old sand dunes.

Industry: Gary is the heart of one of the largest industrial areas in the world with five divisions of the United States Steel Company employing more than 30,000 people.

Also in Northwest Indiana are the Bethlehem Steel, the Midwest Steel, the Inland Steel, and the Youngstown Sheet and Tube and Republic Steel Companies.

The newly opened Port of Indiana, dedicated in 1970, six miles east of Gary, opens Northwest Indiana trade to the entire world through the St. Lawrence Seaway.

Other major employers in Gary are the Budd Company, producing auto bodies, and the Anderson Company of Gary manufacturing auto accessories.

Gary has long been known as a great ethnic melting pot as the lure of jobs in the big mill brought immigrants from Poland, Romania, Serbia, Hungary, Greece, Czechoslavakia and the Ukraine in the early years of Gary. As time went on, they were joined by Blacks from the south, hill people from the Appalachian region, Mexicans and other Europeans. The labor shortages of World War II brought thousands of Black steel workers from the south to Gary. Much of Gary's community strength is built on the pride that citizens have in their individual heritage.

The above paragraph was taken from a pamphlet distributed by the Gary Chamber of Commerce. It is accurate in that Gary is an "ethnic melting pot" but is more positive about the success of the mix than is warranted. In 1967 the first Black Mayor was elected in Gary after a bitter election battle. The racial tensions had been great previous to this time, during our Stage I testing, and continued with this change in leadership during our Stage II and Stage III data collection. A majority of the city is Black or of Mexican or Puerto Rican origin, and tensions remain. Efforts toward integration are being made (such as a "voucher" system which allows parents to choose a school for their child) but there are all-Black, all-white and integrated schools within the system. The racial tensions, among other tensions, have produced considerable upheaval within the school system itself. In our opinion it is a credit to the Gary system that they assisted our efforts over the years, even with three superintendents during these years.

The Director of Research, Dr. Hoock, with the approval of the Superintendent and Board provided our primary liaison with the schools. The principals, teachers, students and staffs were, by and large, quite cooperative.

The primary constraint placed on our data gathering by the Gary system, and the other systems, was the time constraint. As they would not accept the full testing schedule we opted to eliminate the aptitude and achievement testing and to use these data as collected by the schools themselves. This has meant statistical analysis of all aptitude and achievement data to develop comparability of such scores across the school systems.

Wherever deviations from the scheduled testing exist, as in the absence of BRS data for Stage III in Emerson High School in Gary, the reason is the time constraint. The full 6-hour testing block, and even the 4-hour block that was administered by the Chicago Station, was considered by all school personnel to be the limit, if not excessive.

Difficulty arose in Gary in the process of Stage I testing over a misrepresented item from child subject to parent. The end result of some hectic days of diplomacy with the Gary school authorities was the continuation of cooperation and the acknowledgement by all parties that we were not in our testing prying into the quality of parents' relationships.

The pupils were fairly docile and asked nothing from the test administrators. The school personnel, at all levels, wanted informative feedback from the study staff. Reports were written and circulated on data deemed particularly pertinent for each school, on its own data, and a complete report given to the system.

The schools of Gary operate, in regular session, 180 days per year, six hours per day at both the elementary and high school levels. The average class size is 28 in high schools and 24-26 in elementary schools.

All teachers hired after 1963 must have a M.A. degree within five years of having been licensed. All full teachers are licensed within the first year of their assignments.

The Selected Gary Sample

The high schools and elementary schools selected for the Gary sample reflect the range in ethnic makeup and SES of schools found in the northern United States urban school districts. The majority of the schools in which we tested were racially integrated by children of lower-middle, working, and lower-class families. One high school was racially integrated and showed a mixing of SES levels (Horace Mann). One elementary school was all-Black working class and lower class (Pyle) and one elementary school was all-white working and middle class (Marquette).

The students selected for both the Stage I and the Stage III samples from Gary were primarily upper lower class white subjects. Almost all of the Black sample reported on in Volume VII were selected from Gary. Excluded from the Gary sample were those students who did not fit our sample requirements in some way with a fairly large number excluded from Gary because they were not born in this country or were from ethnic minority groups such as Mexican-American or Puerto Rican.

Flossmoor, Illinois -

Flossmoor is a small suburb south of Chicago which has no local industry and is purely an affluent bedroom suburb. It is typical of upper-middle class neighborhoods in large cities and the more numerous upper-middle class suburbs that surround large cities. The residents of Flossmoor are mostly business and professional people who commute to Chicago for their work. A small percentage of the population is working class whites who carry out working class type functions in the town, and are a stable population having in many cases lived in the community for many years. The population is 6,900 and the mean family income is reported by the Chamber of Commerce to be a questionable $33,000 per year.

The Flossmoor school system, like many systems in suburbs of this economic strata, has a reputation for being a modern and top quality system. The facilities are modern in design and relatively newly built. There are 185 days of school per year, six hours per day for both elementary and high school. Class size averages 27. Approximately 40 percent of the high school teachers and 5-10 percent of the elementary school teachers have advanced degrees.

Selected Sample in Flossmoor

The two elementary schools and one high school selected for data collection in Flossmoor were as representative of the system as the system itself is of this type of suburban and social status school system. Cooperation from the teachers and principals was good throughout, seemingly, as it was dictated by the Superintendent. The Superintendent sought and received the support of the School Board prior to accepting our request to enter the schools. Unfortunately at the end of the school year during which we did Stage I testing, the Superintendent went to another school system. The new Superientendent did not want any outside research in the system and would not allow our staff to proceed with the rest of the data collection. The new systems (Evergreen Park and Hinsdale) used for Stage III data collection were forced because of this decision, but the real difficulty arose in Stage II data collection and is detailed in that section.

It is interesting to note that the docility so evident in the students of the Gary system was not present in the Flossmoor system. The students were questioning, before, during and after, test administration. Although the majority of questions were friendly and curious, the ten item literacy test provoked less friendly, almost hostile questioning. As this was the first test, and seemed to set a poor atmosphere for the rest of the testing, we stopped giving the literacy test.

Evergreen Park -

Evergreen Park is a suburb of approximately 27,000 persons nestled in a southwestern corner niche of Chicago. It has the character of a nice working class neighborhood, although we found a surprisingly large spread of socioeconomic status in the sample from Evergreen Park. The Village motto is "Village of Churches" because of the high number of churches, 13, in its boundaries. Retail commercial establishments dot the village and a two-mile stretch along its eastern boundary is a main shopping area for the southwest side of Chicago and suburbs. This very busy area adds to the more urban than suburban character of Evergreen Park.

The Evergreen Park School District operates 177 days per year, six hours per day, with an average class of 29 pupils at the high school level. The District reports that over 60 percent of the teachers have advanced degrees. Everyone in the district was very helpful. The testing was done in classrooms in part in the Evergreen Park Junior High School but the bulk of the testing was carried out in the gymnasium/cafeteria. The students maintained decorum and interest throughout. Anecdotally, the test administrators were approached after the testing by two boys who questioned in length the use of the tests with particular emphasis on invasion of privacy and national security. The boys appeared very bright and quite animated as they referred to their interest in and affection for various right wing political groups. We have no way of knowing how many like thinking children attended this school.

Hinsdale -

Hinsdale is a western suburb of Chicago and was chosen for sampling for Stage III data collection to replace Flossmoor. Hinsdale is not as wealthy a community as Flossmoor but is a middle, upper-middle class community. The population is approximately 16,000 and the majority of heads of households are business or professional people who commute to Chicago. The reported average annual income is between $15,000 and $16,000. There is no local industry but a large office park has recently been built employing several hundred people. Hinsdale does not have significant numbers of ethnic minority members but does have large numbers of Christian Scientists and Seventh Day Adventists.

The Hinsdale School System is reputedly of superior standing in the Chicago area. Hinsdale High School was a beautifully equipped building and the modernity of the educational program was illustrated by the team of teachers handling the Social Science classes in which we tested. The Principals and teachers were very cooperative once we overcame the initial obstacles of time taken from class and possible political implications of our study.

Wherever we tested we gave some feedback to the students by way of explaining something about the study. In many instances this was quite short. In Hinsdale the testing and feedback was incorporated into the social studies sessions and we, the test administrators, gave a description of the study, its purposes, methods and possible implications, with a question and answer session, to each class.

AUSTIN, U.S.A.

City of This Study

Educational System

The Austin Public School system consists of a total of 73 schools as of the 1970-71 school year. Of These, 54 are elementary schools (grades one through six), 11 are junior high schools (grades seven through nine), and eight are senior high schools (grades ten through twelve). There are few public kindergartens since the public kindergarten has only recently been instituted. There is a total of 22 kindergarten classes in the Austin Public School District, four of which involve tuition. There is no readily available information concerning the exact number of private schools in Austin since there are a large number of private nursery schools and kindergartens, some church-sponsored elementary schools, Catholic parochial schools, and other assorted private schools.

There is a total of 54,974 students attending school in the Austin school system. Of these, 14,684 attend senior high schools, and 10,799 attend junior high schools, bringing the total enrollment in the secondary schools to 25,463. There are 29,511 students enrolled in the elementary schools. The enrollment in individual high schools varies from 938 to 2,605, and that in the junior high schools from 739 to 1,277. The size of the elementary schools varies from 141 to 923 total pupil enrollment. Of the 14,684 senior high school students, 2,397, or around 16 percent, of them are Black and 2,191, or almost 16 percent are of Latin-American origin. The percentage of the total enrollment in high schools, which is Black, varies from 1 percent ot 98 percent. The percentage of Latin-Americans varies from .5 percent to 62 percent.

In the junior high schools, there are 1,570 (or around 14 percent) Blacks, and 2,095 (or around 19 percent) Mexican-Americans. The percentage of total enrollment,which is Black,in the individual junior high schools varies between 0 percent and 98 percent. This percentage for Mexican-Americans varies between 1 percent and 86 percent.

In the elementary schools, there are 4,614 (or 16 percent) Black students and 6,908 (or 23 percent) Mexican-American students enrolled. The percentage of Blacks in a given school varies from 0 to 99 percent; while the percentage of Latin-American students varies from 0 to 97 percent. The overall percentage of Black students enrolled in the Austin school system is 15 percent and for Mexican-American students is 20 percent. The total enrollment at each grade level varies from 5,012 in the first grade to 3,175 in the 12th grade or last year in high school.

The total professional staff of the Austin School System consists of 2,609 individuals, of which 2,248 may be classified as classroom teachers. The remainder may be classified as Special Education teachers, Kindergarten teachers, Librarians, Special Service teachers, deans and counsellors, and administrative personnel. Of these classroom teachers, there are 644 in the senior high schools, 457 in the junior high schools, and 1,147 in the elementary schools. In the elementary schools the professional staff consists of 1,253 (or 95 percent) women and only 70 (or only 5 percent) men. In the junior high schools, the professional staff consistes of 383 (or 71 percent) women and 158 (or 29 percent) men. In the senior high schools the professional staff consists of 425 (or 58 percent) women and 315 (or 42 percent) men. There is no information readily available regarding the age or socioeconomic class background of the teachers in the Austin School System. Information regarding ethnic background of the teachers, however, is available. There are 134 (or ten percent) Black teachers in the secondary school system and 284 (or 20 percent) in the elementary schools. Overall, 15 percent of the teachers in the Austin public school system are Black. There are 34 (or three percent) secondary school teachers of Mexican-American desent, and 49 (again three percent) elementary school teachers.

The general requirements for teachers in the Austin School System are as follows: (a) bachelor's degree from a fully accredited college or university, (b) possession of an eligibility for a valid Texas Teaching Certificate for the level and subject area in which he is to teach, (c) having been actively engaged in full-time teaching or having attended college for at least one term during the three years prior to his appointment, and (d) having had prior full-time public school teaching or having successfully completed an approved student teaching program. A total of 1,766 of the professional staff (or 67 percent) have earned Bachelors' degrees only. A total of 968 staff members (or 37 percent) have earned Masters' degrees; while only ten of the professional staff possess Ph.D. degrees. The percentage of the total professional staff possessing Masters' degrees increases from 29 percent in the elementary schools, to 34 percent in the junior high schools, to 43 percent in the senior high schools. A larger percentage of the male staff than of the female staff possess Masters' degrees, the figure being 51 percent and 31 percent, respectively. There are 441 teachers in the Austin Public School System who have had one year or less total teaching experience; while 697 have had between two and five years experience. There are 437 who have had between six and ten years experience, 321 with between eleven and fifteen years of experience, and 848 with sixteen or more years of experience, including 42 teachers with forty-one or more years of experience.

Among the Austin schools, socioeconomic class distribution is not homogeneous though exact figures concerning socioeconomic class background are not available from the school system. Since soecioeconomic class is rather highly correlated with ethnic group background in this city, most, but not all, schools in this city whose student bodies are composed primarily of minority-group students also represent primarily the lower-class socioeconomic strata. The student body of one high school is virtually all Black, another is primarily Mexican-American, and three of them are overwhelming "Anglo"-American. The remainder possess a more heterogeneous representation of students. In the junior high schools, again, the student body of one school is primarily Black, another is primarily Mexican-American, and seven are primarily "Anglo"-American. The remaining schools are more heterogeneous. The same basic type of patterns may be observed in the elementary schools. There are five schools where 95 percent or more of the student body is Black, four where at least 95 percent are Mexican-American, and eleven with this same percentage of "Anglo"-American students. The remainder are somewhat more hetereogeneous in ethnic-group composition.

The information concerning the ratio of male to female students in the Austin Public School System is not available but it may be safely assumed that the proportion of each is approximately equal. The average classroom size in the elementary schools is 24 pupils, while the average size in the secondary schools is 32 pupils. In the elementary schools there are approximately 28 pupils for every teacher; while this ratio in the secondary schools is 33.1. At the elementary school level, pupils attend classes from 8:15 in the morning until 2:35 in the afternoon. In the secondary schools the hours are from 8:30 in the morning until 3:30 in the afternoon. In both cases, students attend classes five days per week (Monday through Friday). The number of school days per year are 180 with school generally beginning in early September and ending in late May. Schooling is compulsory from age six through age seventeen, though there are a number of students who stop attending school prior to age seventeen. In the elementary schools, the students spend the majority of each school day with one single classroom teacher, who, due to this prolonged contact with students, is able to become better acquainted with the students than in the case of secondary school teachers. The amount of time spent with the main classroom teacher varies from school to school, as in some schools there are special Art, Music, or Physical Education teachers and during certain periods each week time may be spent with these teachers in pursuit of the aforementioned subject matter.

In the junior high schools, far less time is spent with one basic classroom teacher, and there is far more specialization in teaching, even with regard to the basic core curriculum. Children in the secondary schools often go from one room (and teacher) to another each one hour period (of which 50 minutes is actually spent in the classroom). Again, the number of different teachers encountered by a child in secondary school varies somewhat from school to school. The basic subject matters taught in elementary schools are: Reading and Writing skills (along with Spelling), Arithmetic skills, basic principals of General Science, Social Studies and Geography. There is less emphasis placed upon Art, Music, and Physical Education. In the secondary schools, the basic curriculum consists of English (both literature and grammar), Geography, History, Government, Sciences (general, biological, chemistry, and physics), and Mathematics (basic mathematics, algebra, geometry, and trigonometry).

Physical Education is also generally required, although there are certain activities which may be substituted for Physical Education. Other "Elective" courses are also available, such as typing, other secretarial skills, art, and various musical activities such as band, orchestra or choral work. This list, of course, does not include the various vocational courses available in the senior high schools for students who do not plan to attend college.

In general, it may be said that the community attitudes toward the school system are favorable. This is evidenced, in part, by the overwhelming support of large school bond issues where the voters approve certain sums of money (paid by the voting tax payers) for expansion or improvement of the school system. There is no direct information as to the community attitudes toward the major goals of the educational system. However, information gathered from a small sample of parents of school children indicates that the primary goal seems to be the rather abstract one of "becoming generally educated." Of secondary, but major importance, is the acquisition of specific subject matter skills and preparation for college or later career selection. In addition, goals mentioned are those of obtaining vocational skills (for terminal students), acquiring social skills and community concerns, and training for good citizenship.

Goals as seen by the school system itself are certainly somewhat similar.

Each individual school in the Austin School System has its own Parent-Teacher Association (PTA) which is also organized city-wide. There are both State and National PTA organizations and publications. These publications publish programs and themes and furnish materials for use in the individual school organizations.

The local PTA associations consist of both parents and teachers. Occasionally, especially in the senior high schools, the students also participate in the organization. Meetings are held once a month in the evening. Officers consist of both parents and teachers who are elected for a one-year term. Dues are $1.00 per year. As a general estimate, it may be said that approximately 25 percent of the parents of the student body belong to PTA. While there are somewhat more mothers than fathers, the fathers are rather well represented. At the beginning of the year, the PTA sponsors "Back to School Week." Here, the parents come to the school in the evening and become acquainted with the children's schedule and teachers by going from classroom to classroom as their child does during the day. Each regular PTA meeting consists of a short business meeting, followed by a program of some nature. The primary value of the PTA is parental involvement and knowledge of the school's function and purpose, as well as the opportunity to meet the teachers and discuss issues with them, whether of a general nature or specific to an individual child.

The Austin Public School System maintains a School-Community Relations office whose primary functions are: (a) to provide consultant services to principals and teachers on matters pertaining to local school-community relations; (b) to coordinate the regular dissemination of information about the school system through appropriate channels such as mass news media, professional journals, and locally produced special publications; (c) to publish and distribute the district's internal newsletter for all employees; (d) to pass on all requests from community organization and agencies for the distribution of materials to schools, and (e) to interpret school policies and regulations.

Insofar as individual schools are concerned, the principal is responsible for maintaining contact with his school community through all possible channels, such as newsletters, announcements, notices or bulletins, individual and group conferences, and PTA.

At the end of each year, the individual classroom teachers are the ones who are responsible for deciding whether a child should be promoted to the next grade or retained in the same grade for another year. In the first grade 585, or 12 percent of the students, are not promoted at the end of the school. For the other elementary school grades, the percentage not promoted are as follows: 7 percent for the second grade, 2 percent for the third grade, around 1 percent for the fourth, fifth, and sixth grades. At the junior high level, around 2 percent are not promoted from the seventh grade, 3 percent for the eighth grade, and around 7 percent for the ninth grade. At the senior high school level, around 7 percent are not promoted from the tenth grade, around 10 percent from the eleventh grade, and around 3 percent from the twelfth grade. School grade reports are sent to the parents every six weeks during the school year, and the teacher's decision is based upon her estimation of the ability of the child to be able to master the subject matter at the next highest grade level.

As was mentioned earlier, though compulsory education continues, theoretically, through age seventeen, many students drop out of school prior to this age. There are virtually no school dropouts in the elementary grades. In the junior and senior high schools, the dropout rate varies depending on whether or not the school in question is a "Title I" or economically disadvantaged school (schools serving students from economically deprived areas). In the seventh grade, around 2 percent of the economically disadvantaged and less than 1 percent of the nondisadvantaged students drop out of school. In the eighth grade, these percentages are 6 percent and less than 1 percent, respectively. In the ninth grade, the figures are 8 percent and around 4 percent, and in the tenth grade these percentages are 16 percent and 6 percent, respectively. In the eleventh grade the figures are 13 percent and around 9 percent; while in the twelfth grade they are around 7 percent and 3 percent, respectively. Thus the highest dropout rate occurs during the tenth and eleventh years in school.

There are no curriculum differences in the school program for college-bound and noncollege-bound students at the elementary and junior high school levels. Beginning in high school, however, there are certain differences in the required curriculum. There are similarities, also. For example, regardless of future plans, all students must have three years of English, one year of World Georgraphy, one year each of World History and American History, one half year of Government, two years of Mathematics, one year of Science, two years of Physical Education, and one half a year of Health. Students preparing for college must take one additional unit of Science; and the Mathematics courses taken must include either two years of Algebra or one year of Algebra and one year of Geometry. College preparatory students are allowed eight elective units, while general or terminal students are allowed nine electives.

For terminal vocationally-oriented students, there are seventeen different courses offered which may be taken. These include such courses as Agriculture, Building Technology, Cosmetology, Printing, Trade Radio-Television, Distributive Education, Hospital Science, Masonry, and Office Training. Most of these are two- to three-year courses which meet two to three hours a day. These courses are generally, but not always, begun in the student's junior year. Thus, the vocationally-bound students are separated from the mainstream of student activity for around half of each school day.

There is a continuing program of aptitude, achievement, and vocational testing carried out in the Austin Public Schools. Group intelligence tests are given to all students in the second, fourth, and seventh grades. Aptitude tests are given to all students in the tenth grade; while achievement tests are given to the students once a year in grades two through nine. Reading readiness tests are given to all first grade pupils during their third or fourth week in school. In addition, vocational interest inventories are given all pupils in the ninth and eleventh grades. These tests are all used to help evaluate student abilities and actual skills, and potentials so as to better plan future programs for the individual student and place him in classroom situations best suited to his particular needs. The vocational tests are of value in helping a student determine his future goals with respect to career choice. These are all nationally standardized tests administered under the auspices of the local school system.

In addition to the testing program for evaluation and aiding students, the school counseling and guidance service serves a valuable function in aiding students. The counseling and guidance program is under the supervision of the Director of Counseling and Guidance who coordinates all work with principals, teachers, and counselors, as well as being responsible for any liaison with any outside social service agencies. Each school counselor is directly responsible to the principal, but works cooperatively with other staff members in all areas of the school program. The counselors' responsibilities include the construction of academic programs and the academic placement of students, i.e., grouping, including the development of special classes. The counselors' primary function is to provide educational, vocational, and personal guidance to students. The exercise of this function includes the following: (1) interpretation of standardized test results; (2) development of educational and vocational plans; (3) aiding students to make meaningful and realistic appraisal of their abilities, potentialities, and limitations. The counselor is a consultant to teachers for the presentation and interpretation of guidance information. He also provides liaison between the school and parents. Included in this function are the following: (a) presentation and explanation of academic and administrative matters; (b) interpretation of standardized test results; and (c) communication and explanation of educational and vocational opportunities and requirements. Counseling services in the secondary schools are of three major kinds: (1) obtaining and making available to interested school personnel information that is useful in understanding pupils; (2) carrying on among the faculty, pupils, and parents a program designed to interpret and constructively apply the information available about individual pupils and special groups; and (3) carrying on an individual counseling service at the secondary level that will help each individual pupil better understand his own abilities and develop them in relation to his environment in school, home, and society. This includes assisting students in program making and in acquainting them with college entrance and vocational training requirements.

Guidance in the elementary schools includes all of the services involved in helping children develop into persons who feel comfortable about themselves, who feel right toward other people, and who are able to meet the demands of life. Assistance to teachers in providing the special needs is, of course, necessary. Consultation services are provided parents in helping them comprehend their child's mental and physiological development in order that realistic academic goals might be set. The services of the counselor are available to all children, not just problem-children.

Pupil/teacher relationships are, as a rule, informal though certain rules and regulations must be observed. Within the limits of adequate discipline and control of the classroom, informal good-natured interchanges and humorous interactions are allowed. Children are all called by their first names all the way through high school. Of course, interaction style varies considerably with the personality of the teacher and the make-up of the class.

The Selected Sample

Description of the Schools from Which the Final Sample Was Drawn

The primary criteria in selection of schools for the Austin sample was the homogeneity of the socioeconomic class structure of the particular school. In addition, with respect to the Austin sample, schools were also chosen which contained a large proportion of one or both of the minority group sub-samples tested. Those elementary schools and junior high schools which were finally selected were those which: (a) were located in primarily upper-lower class or upper-middle class areas with predominately "Anglo" (non-minority group) students, or (b) contained a predominance of students belonging to one of the two minority group sub-samples. Due to the larger geographic areas covered by the junior high schools, socioeconomic class (or ethnic group) homogeneity was greater in the elementary schools than in the junior high schools.

There were 3,622 subjects tested in order to obtain the Austin sample quotas of 800 subjects (100 per cell) plus 400 minority group sub-sample subjects. Of these subjects 2,063 were ten-year-olds, while 1,586 were fourteen-year-olds. Subjects from a total of fifteen elementary schools were tested. Of these schools, two were almost entirely upper-middle class; while five were largely upper-lower class. The remaining eight schools were used primarily in order to obtain the minority group sub-samples.

Subjects from a total of five junior high schools were tested in order to obtain the fourteen-year-old sample. One of these schools was predominately upper-middle class in structure, with the remainder of the upper-middle class main sample subjects being obtained from two other schools where the majority of subjects belonged to the upper-lower socioeconomic class. In all of these schools, the majority of students were not members of either minority group tested. The remaining two schools were used for obtaining subjects for the minority-group sub-samples. One of these schools was located in Austin and the student body was composed almost entirely of Latin-Americans and Blacks in approximately equal proportions. It is felt that while the sample obtained represents the city tested fairly accurately, that it does not accurately reflect the population nationally. This is due to several demographic peculiarities of the city. First, being primarily a non-industrial university town, which is the Capitol of the State of Texas, there is a larger proportion of families classified as upper-middle class (professional, government, and business) than in most cities of comparable size. This large upper-middle class segment is almost entirely white with very few representatives of either minority group. What frequently happens with Latin-American families is that, as they obtain upper-middle class status they tend to lose their ethnic group identification even though the Surname may remain identifiably Latin-American. Austin is probably somewhat atypical in the makeup of the upper-lower class segment, also. That is, there are comparatively few upper-lower class white families in the city limits. The majority of the upper-lower class within the city limits is either Latin-American in origin or Black. This is the reason for testing in Temple, Texas where the remainder of the white upper-lower class ten-year-old sample was obtained.

The reactions of the public school system to the testing were, in general, favorable and cooperative. In one school only was there any notable unfavorable reaction. This was a primarily upper-lower class junior high school where testing was begun, but had to be discontinued due to unfavorable reactions on the part of some of the school staff and several, somewhat vocal, parents. The school principal, with whom the initial testing arrangements were made, died shortly after testing was initiated and his replacement appeared unwilling to take the necessary steps to insure full cooperation from teachers and pupils. There were a scattering of individual teachers who were somewhat reluctant to cooperate, but testing was allowed to continue to completion in these few classrooms. The lack of full cooperation on the part of these few teachers was evidenced by their partial or total lack of cooperation in filling out the various teacher forms; and in the attitude toward the research which was communicated either directly or indirectly to the students in the classes taught by these teachers.

The only general restraints placed upon the research involved the question concerning religion in the Demographic Questionnaire. This decision involved a federal government regulation rather than a local school-board restriction. It was necessary to label this question "Optional," so that students would not be forced to answer the question, should they so choose. Very, very few students chose not to answer this item, and these were primarily upper-middle class fourteen-year olds. Naturally, the question involving race was not asked directly. This information was supplied by the test administrators upon collecting the Demographic Questionnaire. There were a few somewhat delicate situations which arose during the process of testing. One such situation occurred in a few instances with children whose parents were separated, divorced, or one parent deceased. The child would become upset when (a) answering that portion of the Demographic Questionnaire concerning whether or not he lived with both of his parents, or would become upset when faced with the Sentence Completion items dealing with the mother or the father. The children were told, upon observing that they were upset, that they did not have to answer these specific items. This situation occurred primarily with ten-year-old subjects.

In addition, some children were somewhat reluctant to answering the BRS items and appeared to be somewhat concerned as to who would be reading their responses aside from test administrators. However, in no case did a subject, who otherwise cooperated, refuse to answer the questionnaire.

In the fourteen-year-old upper-middle class group, there were a few subjects (less than six) who refused to participate in any manner in the project. These students had been advised by the parents, in most cases, not to participate.

The majority of the students cooperated rather well with the researchers in supplying the information requested by the various inventories. There were one or two classes of fourteen-year-olds who were quite difficult to test due to the fact that a large proportion of the students in the class exhibited behavior problems and a certain degree of incorrigibility. These were primarily fourteen-year-old subjects. There were also some students, particularly in upper-middle class schools, who were bored by many of the instruments and appeared not to be cooperating fully because of this. Again, these were primarily fourteen-year-old students. It was difficult to assess, in most cases such as these, just how much the boredom detracted from honest responses or reasonable effort exerted. It was apparent, in some instances, in the case of the Story Completion instrument, that this negative attitude was evidencing itself in bizzare and pathological Story Completions for purposes of shocking the test administrators.

In most schools where testing was carried out, the school administrators and most of the teachers requested some sort of feedback as to results of the testing. This was especially true with respect to the results of the aptitude and achievement measures which were administered by the research team.

All teachers involved, as well as school administrators, were given a copy of the "Project Resume" which briefly explained the purposes of the research, the principal investigators, and the method of funding the research. Some teachers wished to have more detailed information about the research while others apparently felt no such curiousity. Whenever time permitted, teachers were given any further information requested. This additional information was often communicated in the "Teachers Lounge" where teachers spend their time during those periods when they are not teaching; as the researchers also spent the time between testing periods in the lounge.

Often the students, primarily the fourteen-year-olds, asked specific questions about either general research purposes, or the purposes of specific instruments. Prior to the initiation of testing, each class was given a brief overview of the research which mentioned all participating countries and age groups and a very general statement of the areas of interest to the research project. Any further questions were answered when it was felt that the answers would not bias the purpose of the research. When instrument-specific questions were asked, the administrator withheld his answers until after the instrument had been administered.

JAPAN

NATIONAL EDUCATIONAL MILIEU

Demographic Characteristics

The total population of Japan was 100,243,000 in 1967 and the population density was 274 persons per 1 square kilometer. As 80 percent of the land is mountainous, the density in the flat area is tremendously high. The age distribution is as shown in Table 1, which indicates the recent decrease of birth rate. As it is also shown in Table 3, the rate of population increase in Japan has become much smaller in recent years, the annual increase in 1955-1965 being only 1.0 percent in average. In other words, the increase has practically ceased in recent years.

Table 1

0 - 9 years	16.0%	50 - 59 years	9.1%
10 -19	19.3	60 - 69	6.2
20 -29	17.6	70 - 79	3.6
30 -39	16.2	80 -	0.3
40 -49	11.7		

Population distribution among the major divisions of industry is as shown in Table 2. The proportion between urban (city) and rural (town and village) populations was 68.1 vs 31.9 in 1965.

Table 2

Primary Industry	24.7%
Secondary Industry	31.9%
Tertiary Industry	43.4%

The distribution by social class cannot be obtained, as no public office nor research institute has adopted the classification of social classes, which is identical or similar to ours. For the same reason, the figure is not available which directly shows the social mobility in Japan. But, there is no question that the social mobility is very high in our country. The reason of the high mobility is that the social class is naturally unstable in a country like Japan where the economic structure is rapidly as well as radically changing, driving people to strive for a newer and higher status -- otherwise they will be left behind and will fall into a lower status. We understand the custom still exists in Europe to stay in the same social class they inherited from their father without having any higher aspiration, and to enjoy one's living in his social milieu of high stability. It is absolutely difficult to find such an attitude in contemporary Japan.

Table 3 shows the increase rate of population in various parts of Japan from 1960 to 1965, which indicates geographical mobility. It is clear from Table 3 that a large amount of population has moved from other areas into the areas which include large cities, such as Tokyo and Yokohama (located in the Kanto) and Osaka and Kobe (located in the Kinki), where heavy industries have highly developed.

Table 3

		*			*
Hokkaido	2.6%	2.7	Chugoku	-1.1%	-1.5
Tohoku	-2.3%	-4.5	Shikoku	-3.6%	-3.0
Kanto	13.9%	65.8	Kyushu	-4.1%	-11.0
Chubu	4.2%	15.5	Total	5.2%	100.0
Kinki	12.4%	35.9			

*Ratio of the population increase in each district when the increase in the whole nation is considered 100.

Discussions on the ethnic and/or religious groups may be omitted in Japan. The Japanese are a homogeneous race with one language and do not have any significant ethnic subgroups. The main body of foreigners are Koreans, yet their number is small. The number of children who belong to other races and attend our schools is negligibly small. In general, the Japanese are so indifferent to religion that the differences in religion and denomination have practically no influence on their value systems.

As well known throughout the world, GNP of Japan has become the second largest among so-called "free countries," which resulted by a rapid and high-level development of heavy industries. However, the national income per capita was only $ 929 in 1969 which ranked her as the 21st.

Educational Structure

Elementary school is six years; from age six to age twelve. Lower secondary school is three years. These nine years of schooling are compulsory. Upper secondary school is three years. The part-time upper secondary school, however, is extended to four years, though its course of study is the same as that of full-time upper secondary school. As a rule university education is four years with the exception of medical school.

In all levels of school, that is, from kindergarten to university, the academic year begins on April 1 and ends on March 31 of the following year. In elementary and secondary schools, an academic year is usually divided into three terms. They have long vacations in summer (July 21 - August 31) and winter (December 26-January 7). They also have one or two weeks of spring vacation in March. Most universities are operated in semester system, and have longer vacations than elementary or secondary schools in summer and winter. They also have a long vacation in spring (February 20 - April 15).

Children must be enrolled in the schools of their own school district, when they prefer public elementary or secondary schools. They can enter any private schools regardless of their place of residence.

The percentage of the five-year-old children in kindergarten and day nursery was 69.3 percent of the age population in 1965. The number of children enrolled in kindergarten is rapidly increasing. It increased from 46.7 percent in 1966 to 49.4 percent in 1968.

The general outlines of the curricula for compulsory and upper secondary education are prescribed for each school grade and made uniform all over the country by the Ministry of Education. In this sense, the administration of education in Japan is highly centralized.

A number of private schools exist at all levels from kindergarten to university. There is no essential difference in education between public and private schools. The private schools more or less receive subsidy from either the national or prefectural government. Most of them are located in big cities. In some of them, their pupils are much brighter than those of the public schools. This is probably due to the competitive selection at the time of entrance and the family background favorable to education. In many private schools, however, the academic abilities of pupils are not necessarily better than those of public schools. In other words, there is a great variety of private schools.

The children who have attained the age of six before April 1 must be enrolled in an elementary school on April 1 of that year.
Those who will become six years old on or after April 1 will be enrolled on April 1st of the following year. The percentage of those who fail to be enrolled or who are absent from school for a long period is negligible. For example, in 1967 the percentage of such children was only 3.8 percent in elementary schools and 0.7 percent in lower secondary schools. Among them, 2.0 percent in elementary schools and 0.4 percent in lower secondary schools were absent because of illness. In elementary through upper secondary schools, there is practically no holdover in the same grade or dismissal from school for any reason, least of all for poor achievements. This could happen only when a child has extremely poor health. Neither is there any case of double promotion or skipping allowed for any reason, even for very excellent achievements. The reason why they are not allowed is that holding over in the same grade is considered "a dishonor" while skipping is "unfair." Therefore, both parents and teachers have the idea that these systems cannot be permitted in school at all. One of the reasons why such a ridiculous idea is prevailing without any question is that people think of school primarily as an institution which grants students some formal qualification rather than a place to develop their children's abilities.

The number of special classes for the blind, deaf, dumb, physically handicapped, and weak-minded is 2.6 percent of the total number of the classes in elementary schools, and 3.4 percent of all the lower secondary classes. The number of children enrolled in the special classes is 0.7 percent of all elementary children, and 1.0 percent of all lower secondary children. Among them, the number of classes for the weak-minded is very small. Therefore, 4-5 percent of the pupils in ordinary classes of compulsory grades should be regarded mentally weak, their IQ being below 75. Because of the above reason the difference of abilities within a class is very large in compulsory grades. Ability grouping cannot be adopted, as antagonism to it is strong. The objection stems out of the same reason which denies the holdover in the same grade. The denial of ability grouping further accelerates the difference of abilities within a class. As a natural result, the instruction given by a teacher is aimed at the pupils of average ability. Therefore, excellent pupils are bored while inferior ones are left behind. If the parents of inferior pupils can afford it, they hire a college student as a tutor of their children or send their children to a private teacher after school while the children keep attending at the regular school, as well.

Characteristics of Educational Staffs

Distribution of public school teachers by age and sex in 1966 was as shown in Table 4. Though no statistical figure of their socioeconomic status is available, it is generally considered they belong to middle-middle class. Table 5 shows the distribution of teachers by the number of subjects they teach. Table 6 shows the kinds of schools from which teachers in 1965 graduated. But today most teachers come from teachers' colleges of national university; Table 7 shows the distribution of newly recruited teachers in 1967. The description on in-service training of teachers is omitted in the present report, as it varies in its content by locality, school level, and subject.

Table 4

Age & Sex	Elementary	Lower Secondary
29 or under	18%	26%
30 - 39	47	46
40 - 49	23	18
50 -	12	10
Total	100	100
Male	50.4	73.9
Female	49.6	26.1

Table 5

	Elementary	Lower Secondary
Teach No Subject (Most of them are principals)	14%	8%
Teach in special class	2	3
Teach one subject	5	57
Teach two subjects)		26
)	79	
Teach three or more subjects)		7

Table 6

Graduated From	Teaching in Elementary School	 Lower Secondary School
Teacher's College	13.1%	22.6%
Other University	4.1	22.3
Junior College for Teacher's)		
Training)	45.8	32.2
Normal School in Old System)		
Other Junior College	10.2	18.0
Upper Secondary School	26.8	5.0
Total (number)	339,884	232,600

Table 7

Graduated From	Teaching in Elementary School	 Lower Secondary School
Teacher's College of National University	71.5%	48.8%
Other University	13.0	30.3
Junior College	14.9	17.9
Others	0.6	3.0

Classroom Description

The number of pupils in a class was 33.4 in elementary school and 44.5 in lower secondary school in 1968. As all public schools are coeducational, the number of boys and that of girls may be considered equal.

Amount of Schooling

The number of lessons given in elementary school is 31 per week in the fifth grade (age 10), which amounts to 1085 for the academic year. One lesson is 45 minutes in elementary school. In the ninth grade (age 14), they have 32 lessons in a week, 1120 lessons for the whole year. One lesson is for 50 minutes in lower secondary school.

Ratio of Public to Private Schools, or Basic System Variations

In 1968 there were 162 private elementary schools, which was only 0.6 percent of the total number (25262) of elementary schools; while the number of private lower secondary schools was 601, 5.2 percent of the total number (11463) of lower secondary schools. The number of pupils enrolled in private elementary schools was 53,700, 0.6 percent of the total number (9,383,000) of elementary school pupils; and the number of students in private lower secondary schools was 144,900, 2.9 percent of the total number (5,043,000) of lower secondary school students. Some private schools are coeducational while some others are either only for boys or for girls. At the level of upper secondary school, most private schools are either for boys or for girls only.

Attitudes Toward the General School System

In Japan where social mobility is great, what decides the future of children is, first of all, their school career. That is, if someone receives only compulsory education, it is an unfavorable condition to him while graduation from a well-reputed university means very much for him. Therefore, even the parents of lower social status want to send their children to college and/or university, though they themselves could not receive higher education (see Table 8). Thus, some characteristic features appear concerning Japanese education. Firstly, what is important is not the academic abilities children get in university, but the dimploma they get there. The situation is not different even in the case of girls, either. That is, if a girl has a poor academic career, she is handicapped in finding a mate who has a brilliant future prospect. Now, most universities confer diplomas on their students as long as they stay there for a required number of years and pay their tuition, no matter whether they study hard or not. Therefore, what parents aim at is nothing but to send their children to a well-reputed university. In order to achieve this aim, they have to send their children to an upper secondary school which sends many of its graduates to well-known universities. Then, in order to enter a well-reputed upper secondary school, their children must be in a well-known lower secondary school many of whose graduates go to a well-reputed upper secondary school. Every time children enter a higher level of school, they have to go through a highly competitive entrance examination. -- In this connection I would like to point out that no questionnaires or tests for research can be given in any Japanese school between September and March, as this is the period when the entrance examination and its preparatory study are going on everywhere in Japanese schools. -- In order to have children pass the exam, a tremendous amount of preparatory education is given, which often makes them sacrifice the development of their character, health, sociability, and creativity. This is done even at the age of kindergarten, in its extreme cases. I would say, it is desperately done all over Japan. This is the most important reason why Japanese children showed very high achievements in mathematics in the IEA Study made in 1964; cf. International Study of Achievement in Mathematics, 1967. In reverse, it means that, as soon as students succeed in entering a university they easily forget the knowledge and ability of the subjects they don't need at the moment. This is why the graduates from Japanese universities do not always possess high academic ability.

Such defect, tragedy, or disgrace of Japanese education has certainly given many ill effect to several aspects of our society. Yet, the parents and the whole society must recognize the existence of the system. Needless to say, there is much criticism of it, and many reform plans have been proposed. As this is a problem, however, where the interests of various kinds of people are entangled with each other, reform campaigns have always gone only half-way or been ineffectual. In other words, it may be said that our society still approves the existence of the system, though there are many complaints about it as well.

Expected Goals of the Educational System

Formal provisions in educational laws are excellent. But, what parents and teachers actually aim at may be easily guessed from the above statement.

Parent-Teacher Relationships

What parents request of teachers may be easily understood from the previous statements. That is, they ask teachers to assist their children and have them successfully enter a well-reputed school of upper level. On the side of school, teachers well know the parent's desire and usually try to cooperate with them. Needless to say, not a small number of teachers maintain noble, humanistic ideals. But there are many barriers which restrict their efforts to put their ideals into practice.

Parental Aspirations

As stated above, the parental aspirations necessarily become high in our society. A research made on a sample of 2719 persons by NHK (Japan Broadcasting Corporation) in 1967 tells us that the educational aspirations parents have for their children are as shown on Table 8. The sample included parents who belonged to the lowest social class. It must be also pointed out that, in order to satisfy their aspirations, many universities exist which are called "university" but offer a very low level of academic studies. The total number of colleges and universities, national, prefectural, municipal and private all inclusive, was 377 in 1968. They had 1,270,000 students enrolled. The number of junior colleges was 468 and the number of their students was 255,000. There is an extremely large difference between a top-level university and a low-ranked one regarding their facilities, faculty, and the ability of their students. The ranks of various universities are well known, yet it is considered that such ranks should not be openly mentioned.

System of Vocational Diagnosis

Lower secondary school has a teacher or teachers of vocational guidance. It is difficult, however, to ascertain the nature and effect of his work. One reason why it is difficult to describe his work is that almost all students proceed to upper secondary schools. Another reason is that, because of the peculiar situation existing and controlling all the aspects of education in our country, any educational activities which are not compatible with it are apt to be neglected.

Teacher-Pupil Relationships and Interaction Styles

Regarding teacher-pupil relationships, the strong rebellion of university students since 1968 must be mentioned first. A part of the student body made a really strong rebellion; a large scale of police force intruded into university campuses and a few students were even killed. Tokyo University, which had long been the supreme tower of higher learning, could not restore its order and had to suspend the recruitment of freshman students for one year. The rebellion maybe, at its root, stemmed from their dissatisfaction with the way of government, but their immediate concern was with the educational system in general and/or the instruction in their own universities, about which they had many complaints. Take the problem of faculty as an example: it is absolutely impossible to provide all the colleges and universities with well-qualified scholars, when there exist hundreds of colleges and universities, as mentioned earlier. The rebellion prevailed not only all over the world, but domestically in Japan from universities to upper secondary schools and even to some lower secondary schools, which may mean that the long existing habit of looking up to teachers as persons whom students must respect and obey has begun to collapse. Indeed, in the last several years this tendency to deny the authority of teachers has been gradually growing, not only in the university, but also in all levels of school, including elementary school.

THE CITY OF THIS STUDY

Overall Description

The metropolitan area called Tokyo had a population of 10,869,000 in 1965, over ten percent of the total population of Japan, though the size of the area is rather small. The area where our research was made is, however, a part of the Metropolis often called the old Tokyo. This is the main part of Tokyo with the population of 9,010,000 and divided into 23 wards. It is the overwhelmingly important center of government, industry, business, and education in Japan. Only the Kyoto-Osaka area can compete with Tokyo regarding industry and cultural activities. Most of Tokyo is ecologically mixed, which is the common feature in most part of Japan. However, if we classify the area with three categories, the ratio of population living in each type of area in 1970 is as shown in Table 9. The climate is rather mild with high temperature, a little over 30°c in summer and slightly less than 0°c in winter. There are only occasional snowfalls in winter. Just before summer it is very damp. As the climate differs from area to area in Japan, a comparison of this area with other areas regarding climate has to be omitted.

Table 9

Population in Industrial Area	29.7%
Population in Business Area	9.2
Population in Residential Area	60.1
Population in Other Areas	1.0

Political, industrial, and educational activities are so active in this area that it is no exaggeration to say that all other areas are subordinated to it. As people move into Tokyo from all other areas, the population increase is so rapid that it often accompanies some destructive effects on living itself. That is, housing, traffic, and air pollution are the problems extremely hard to solve; the ground is sinking in the downtown area and the land where the ground is below sea-level is increasing.

Educational System of the City

As for the educational system of Tokyo, only some supplementary information may be needed in addition to the previous description on the educational system of the whole nation. In 1968 the 23-ward area of Tokyo had 805 public elementary schools, 373 public lower secondary schools. The number of children enrolled there was 592,000 and 252,000, respectively. (This was a large increase in number of schools and enrollment since 1965.) The ratio of boys to girls was 52:48 in elementary schools and 54:46 in lower secondary schools. The number of teachers in elementary schools was 21,200 and that of lower secondary school was 10,300. The ratio of male to female teachers was 46:54 in elementary schools and 75:25 in lower secondary schools. The number of students per class was 37.8 in elementary schools and 40.7 in lower secondary schools. These figures are similar to the equivalent ones in nationwide statistics. As for parents' aspirations for their children's education, about 40 percent of them want to send their children to college and/or university. Practically no parents think compulsory education is all that their children need.

In the whole Tokyo area, the number of foreign children enrolled in public elementary schools is only 0.5 percent of the total enrollment, and that in public lower secondary schools is 0.6 percent. In both school levels, 80 percent of the foreign children are Koreans.

As stated above, private schools do not belong to any school district, and naturally recruit their students from a wider area. That means it is not fair to compare the number of private schools and the number of students enrolled there with the equivalent figures in the 23-ward area. Therefore, we will compare them with the equivalent figures in a larger area which includes not only 23 wards but also adjacent cities, though such comparison is not yet sufficiently adequate. Now, in the above area (23 wards and all "cities" in the Tokyo Metropolis) there are 52 private elementary schools as against 995 public elementary schools, 201 private lower secondary schools as against 456 public lower secondary schools. As for the enrollment, the figures are 24,000 vs 739,000 in elementary schools and 47,000 vs. 311,000 in lower secondary schools. The reason why this area has proportionally more private schools with a larger enrollment than the national average is that the proportion of students is larger who want to enter well-reputed private schools so that they could enter excellent universities. Another reason is that the central part of old Tokyo is not a residential area any more and that students live in the suburbs of Tokyo or adjacent bedroom-towns, no matter whether they go to public or private schools. The space doesn't allow the detailed discussion on this point.

There is not much more to be specially mentioned about Tokyo. The only remark to be lastly added is that any movements which emerge in various aspects of Japanese society and which are always quite radical express themselves with especially strong tone when they appear in Tokyo.

THE SELECTED SAMPLE

On The Method of Sampling Fourteen-Year-Old Subjects in 1965

We decided to get our sample from Tokyo. However, the administrative area named Tokyo Metropolis is a very large area which extends, on the one hand toward the south and the north without any ecological boundary until it neighbors five cities of other prefectures. In this area the population is evenly dense. On the other hand, in its western part, it also includes villages and mountainous areas which are culturally much retarded. Therefore, we decided to limit our area of study, as a rule, to the twenty-three wards which cover the old and central part of Tokyo. In many studies, this area is treated as a unit. It has a population of 8,901,000, the overwhelmingly large part of the total population of the whole Tokyo Metropolis (10,877,000 in 1965). However, when we limit our study to this area, more than ten bedroom-towns are omitted which directly neighbor our area and which embrace many rather high class families. Regarding this point, we have made some adjustment by including 09-School as explained below.

Lower secondary education is compulsory in Japan. We have state-owned, municipal and private lower secondary schools. As the number of state-owned schools is very small, we will neglect them in our study. Each public school (municipal school) has its school district while the private school doesn't have a set district and accepts students from any area regardless of their residences. The district of a lower secondary school usually consists of the districts of a few elementary schools. Sometimes, it includes only one elementary school district and, in some cases, an elementary school district extends over two lower secondary school districts. Under such a district-system, each lower secondary school gets its students from some particular elementary school or schools. All public schools are coeducational. Most private schools are for the separate sexes, but some of them are coeducational. Among private schools, the number of girls' schools is the largest. There isn't any essential difference of curriculum between public and private schools. However, the instruction is usually more strict in the former than in the latter. Private schools have their own characteristics respectively and are differently ranked as to their reputations. The numbers of schools and students in September, 1965 are shown in Table 10. We took our sample schools mostly from public schools.

It was desirable to get a most representative sample from the twenty-three ward area, using a stratified random sampling method. It was, however, impossible for the following reasons. First, many schools did not want to spare nine teaching hours for this research and refused to cooperate with us. Therefore, we had to ask a limited number of schools which are closely related with our institute or with some of our researchers. Second, as the number of students belonging to upper-middle class is proportionally small, if we want to get our sample from a rather limited number of schools, we must intentionally choose some schools where we know that an exceptionally large number of upper-middle students are enrolled. Schools 07 and 09 are the ones chosen with such intention. As the result of such procedure, our sample of schools and accordingly the sample of students are somewhat deviated from their populations, respectively. That is, we got rather many schools and their students of relatively high academic standard. In order to make up for this defect, we tried to get our sample schools from as wide an area of twenty-three wards as possible. We also stratified all public schools in the ward-area (see Table 14) and tried to make the number of students to be taken into the sample from each group proportionally as equal as possible with the size of the group in the population, when we resampled the needed number of students from the sample schools.

Table 10

	Number of Schools in 1965	Total Enrollment	Number of Boys Enrolled	Number of Girls Enrolled
Public School				
The Whole Area of Tokyo Metropolis	497	387,400		
Ward Area only	373	308,000	168,000	140,000
Private School				
The Whole Area of Tokyo Metropolis	194	58,000	20,200	37,800

Table 11 shows the ecological character of each ward which is reported by Mr. Suzuki of the National Institute of Statistical Mathematics. His report is based on the census of 1960. He got nine strata by grouping a few wards together which are of similar character and, in many cases, neighboring with each other. Though we cannot say that a school always has the same ecological character as the stratum to which it belongs, we can roughly know its ecological feature by its location as Tokyo is ecologically well differentiated and the ecological features of a school and the ward where it is located are often closely related with each other. Table 12 explains the character of the school district of each sample school. The advancement ratio into upper secondary school means how many percent of the graduates proceeded to full-time upper secondary schools. In other words, it shows the educational aspiration as well as the financial status of the parents and the professional qualities of the teachers in a given school. Therefore, we often consider this figure one of the best indices to indicate the level of school as a whole. Among the listed schools, some remarks may be needed on 07 and 09 Schools.

07 School. As it is notorious all over the world, the entrance examinations for universities or colleges are highly competitive in Japan. Therefore, parents try to have their children enter an upper secondary school which has the reputation of making a good number of students successfully pass the entrance examinations of highly reputed universities in past years. In order to let their children enter such an upper

Table 11

Stratum	Name of Ward	Number of Eligible Voters	Classification by Profession				Classification by Industry			
			Professional, Technical & Administrative	Clerical	Sales & Service	Skilled & Unskilled Labor	Communication, Transportation, Finance & Public Administration	Wholesale, Retail, & Service	Manufacture & Construction	Agriculture & Fishery
I	Chuo, Chiyoda, Minate	347,874	11.9-17.6%	13.9-19.9%	26.2-42.9%	24.8-36.0%	11.5-21.0%	44.0-60.0%	28.0-36.1%	0
II	Shinjuku, Bunkyo, Toshima	701,673	16.9-18.5	19.2-21.5	24.4-26.2	33.1-38.0	16.5-19.3	41.0-44.0	36.2-41.5	0
III	Shibuya, Nskano, Nerima	695,804	18.2-21.1	21.4-26.6	23.4-24.4	28.6-31.1	21.6-27.0	34.4-42.4	31.4-35.2	-11.8
IV	Neguro, Suginami, Setagaya	1,044,788	21.1-24.9	25.6-28.1	19.8-21.9	27.0-33.4	20.6-23.3	36.7-41.0	32.8-41.5	- 2.7
V	Taito	194,805	11.6	9.0	36.2	43.6	8.7	48.7	42.3	0
VI	Sumida, Arakawa, Koto	615,402	7.8-9.5	9.6-14.7	20.2-21.9	56.6-59.0	8.4-16.1	28.2-30.3	55.0-62.0	0
VII	Adachi, Katsushika, Edegawa	826,153	7.3-9.8	13.3-15.2	18.3-19.9	49.2-55.00	15.5-16.6	26.2-27.0	50.9-55.9	0
VIII	Itabashi, Kita	606,358	12.0-12.6	19.5-21.2	19.4-21.5	46.2-46.7	17.5-19.8	31.7-33.4	46.5-48.6	- 2.0
IX	Ota, Shinagawa	787,628	14.2-15.8	19.1-19.9	19.2-21.6	43.3-44.0	15.8-17.6	32.0-34.3	47.5-49.5	- 2.3

Table 12

Code Number of School	Advancement Ratio into Upper Secondary School*	Name of Ward	Number of Students Enrolled in 1965	Character of School District
01	63.0	Sumida	965	Mostly lower class families engaged in small industry. Educational environment is not good.
02	66.5	Shinagawa	925	Includes many laborers working in small or medium-sized factories. There are also a considerable number of factory-owners or store-keepers.
03	84.4	Meguro	754	Residential area. Many office workers as well as store-keepers are living there.
04	88.5	Bunkyo	994	A part of the so-called "educational area" where many schools are located. Educational environment is rather good. However, many families with educational mind who live in this school district send their children to schools of other districts which have a higher academic reputation.
05	92.1	Shibuya	1440	A time-aged residential area, where a considerable number of dormitories of large enterprises are located.
06	92.6	Nakano	695	A typical residential area of middle class in the outskirts of Tokyo.
07	94.3	Shibuya	1067	A high-class residential place with some business area.
08	94.4	Meguro	1035	Right near our Institute. Fairly good residential place.
09		Chofu-city	813	As this is a girl's private school, it has no school district.

*This is the percentage of the number of graduates who entered full-time upper secondary schools against the number of all the graduates in a given school in 1965.

secondary school, they send their children to a lower secondary school which has a similar reputation concerning the entrance into well-known upper secondary schools. The same policy is applied to the selection of elementary school or even of kindergarten. As 07 school has such a reputation, many parents with high income and high educational background living outside of its school district manage to send their children to this school, though it is illegal and its illegality is repeatedly discussed every spring when a new academic year begins. As this illegal device is used mostly concerning the education of their sons, this school has much more boys than girls. Accordingly, the ratio of boys to girls is, to our surprise, 4:1 instead of 1:1. We have decided to include this school in our sample, because, due to the above-written reason, it has an unusually large number of upper-middle class children, especially boys. It must be also added that, for this same reason, the above description of the character of the school district may not have much meaning in regard to this school.

09 School. This is a girls' private school located in a high-class residential area neighboring the western part of the twenty-three wards area. It draws its students from a wide residential area covering the inside as well as the outside of the twenty-three wards. This school has the upper secondary department as well, where all the graduates of its lower secondary department automatically proceed. Therefore, it is meaningless to speak of the advancement ratio of this school. The academic level of their students is about the same as that of 05 School and not much different from that of 07 School. As we stated above, we could get many upper-middle class boys from 07 School, but not very many upper-middle class girls. Therefore, we added this school to our sample so that we could get many upper-middle class girls who may counterbalance the boys selected from 07 School. By adding these two schools we think we have got a better sample to represent all the students in Tokyo. The reasons we think are, first, that we have our sample from a wider area as well as a wider range of social classes in Tokyo. Second, that we included in our sample two schools representing a group of special schools,, as explained above.

In order to get the final sample out of the tested students, we divided all the lower secondary schools of the twenty-three wards into three groups according to their advancement ratios (Table 13). Then we allotted a certain number of sample students to each group of schools in accordance with the size of the student population of the group to which the given schools belong. We tried to get the allotted number of students from each group of schools as much as possible.

The numbers of the upper-middle and upper-lower students in the ninth grade of our sample schools are as shown in Table 14. The number of students whom we could use for our study further decreased by July, the end of our study of this age group, not only because of the transfer but also because of the exclusion of some students due to the incompleteness of their data.

Table 13

Advancement Ratio into Upper Secondary School	Number of Schools	Number of Students Enrolled (Includes 7,8 & 9 grades)	Allotted number in the sample	Sample Schools
- 49.9	5	4,026	124,443 = 35.7%...... 143	
50 -	11	9,085		
55 -	11	10,345		
60 -	18	16,083		01
65 -	28	24,605		02
70 -	24	24,800		
75 -	41	35,499		
80 -	57	55,154	140,752 = 40.3%...... 161	03
85 -	91	85,598		04
90 -	70	66,038	83,525 = 24.0%...... 96	05,06, 07, 08
95 -	17	17,487		
Total	373	348,720	100% 400	

Remarks to Table 13

a. A school has 935 students in average. Its S.D. is 300. The biggest school has 1933 students, the smallest 194 students.

b. In the allottment of the sample, we considered 09 School belonging to Group III.

c. First, we had planned to stratify public schools using two labels -- further education ratio and the ecological character of the school's location. However, we found that the correlation coefficient between the advancement ratio of a school and the level of advancement ratio of the ward where the school was located was as large as 0.738. The advancement ratio of a ward was obtained by dividing the total number of students who proceeded to upper secondary schools by the total number of students enrolled in the schools of the given ward. Therefore, we used only the advancement ratios of the schools when we stratified them.

As Table 14 shows, we have a smaller number of students in the schools belonging to Group II than the number allotted to this group. We supplemented the shortage with the students of other groups. As a rule, we supplemented the shortage of upper-middle students first with those of the schools belonging to Group I, schools with low advancement ratio, then with those of the Group III, while we supplemented the shortage of upper-lower students first with those of the schools belonging to Group III, the schools with high advancement ratio, then with those of Group I.

Looking, in Table 12 and Table 14, at the relation between the advancement ratio and the social classes of students in each school, we may fairly suppose that, in the population, the advancement ratio and the number of upper-middle students have a highly positive correlation with each other and that the former and the number of upper-lower students have a highly negative one.

It may be apparent from the above description that, from thus obtained figures, we can not make any exact estimation of the statistical figures of the student population of Tokyo. However, we may think that, for the purpose of inter-cultural comparison, our sample is a fair representative of the students with various traits based on those living in large cities. Therefore, we suppose that general tendencies of the relations between various variables found in our sample will coincide with those to be found in a more perfect sample which may be obtained by a more exact random-sampling.

Table 14

Group	Code Number of School	Upper-Middle		Percentage of Upper-Middle Students against Total Number of Ninth Graders	Upper-Lower		Percentage of Upper-Lower Students against Total Number of Ninth Graders	Total Number of Students in each school in whom we are interested	Total Number of Students in each group in whom we are interested		The Number in the Sample allotted to each group		
		Boys	Girls		Boys	Girls			Boys	Girls	Boys	Girls	Total
1	01	2	4	2.0	58	60	40.1	124	100	99	72	72	143
1	02	3	5	3.4	37	30	28.3	75					
2	03	3	4	3.6	19	23	21.8	49	77	70	80	80	161
2	04	18	13	11.0	37	30	23.7	98					
3	05	47	30	19.3	25	24	12.3	126	250	315	40	48	96
3	06	19	22	23.0	16	20	20.2	77					
3	07	58	22	25.5	23	10	10.5	113					
3	08	31	22	19.0	31	28	21.1	112					
3	09	0	129	46.2	0	8	2.9	137					
	Total	181	251		246	233		911					

On The Method of Sampling Ten-Year-Old Subjects

In Japan, 99.7 percent of six-year-old children enter elementary schools (a six-year course) on the 1st of April each year. Once entered, they neither repeat a same grade twice or more due to any cause except illness nor skip over certain grades as a result of their achieving excellent school records, until graduating from lower secondary schools (a three-year course). Therefore, the age of the overwhelming majority of students in a certain grade can be known as soon as a time of investigation is determined. Based on this fact, we discussed with Dr. Peck, who visited Japan in the autumn of 1965, to decide that fourteen-year-old children can consequently be regarded as the third graders of lower secondary school and also ten-year-old children as the fifth graders of elementary school.

Exactly following the sampling method stated above, we sampled the needed number of subjects without losing any single subject, and collected their filled-up questionnaires, tests, and other data. We also completed our survey on the fifth graders of elementary schools and collected their necessary data. We surveyed more than 400 pupils so that we might have some reserve subjects. What we aimed at in our sampling was to make our ten-year-old sample as identical as possible with our fourteen-year-old sample in regard to a) their family environments and b) ecological features of their school districts.

By the exactly same reason as in the case of lower secondary schools, most of our sample schools were chosen from among the public schools in the twenty-three wards of the central Tokyo Metropolis, and just one private school was added to them.

At first, we selected one school as our sample from among the elementary schools adjoined to each of the lower secondary schools we studied the previous spring. We made sure that those selected had the most similar characteristics to their adjoined lower secondary schools.

The number of students in 790 public elementary schools in the twenty-three wards was 580,000 in September 1965, whereas that of 373 public lower secondary schools in the same wards and at the same time was 300,800. This fact shows that the number of students of elementary school in each grade is generally estimated at approximately half that of lower secondary schools. Therefore, if we just selected the number of sample elementary schools as many as that of lower secondary schools, the number of sample students would have been greatly insufficient. So we tried to find a number of lower secondary schools whose advancement ratio into upper secondary schools and whose ecological characteristics were similar to those of our sample lower secondary schools, and which are placed as far apart from our sample lower secondary schools as possible. Then, we chose an elementary school adjoined to each of the above selected lower secondary schools. Again, we tried to select the schools not only adjoined but resembling in their characteristics the respective lower secondary schools. The reason why we selected the schools distantly situated was to make the sample elementary schools scattered as far and wide as possible and thus represent the twenty-three wards as thoroughly as possible.

In the case of lower secondary schools, we selected eight schools (01 - 08). However, as 06 School refused to cooperate with us at the final stage, we actually used seven schools as our sample. Therefore, we decided to get fifteen elementary schools, about twice the former number.

However, some of the selected elementary schools were unwilling to cooperate with us, and yet, after having the demographic questionnaire filled out in several schools, it became apparent that without the participation of those non-cooperative schools we could get enough sample subjects without much bias. Thus, eliminating those five schools and adding another school, the 13 School, we finally got eleven public elementary schools in our sample.

As for private schools, we selected one school by the same reasoning and in the same manner as in the case of lower secondary school. The selected 22 School, like the public schools, is co-educational and the ratio of boys and girls is about 1:1.

Then, we sampled a number of subjects from each school in proportion to the number of upper middle and upper lower pupils found in that school. The sample allotment was done by sex and by social class. However, there were some subjects who did not fill out the questionnaires and tests completely. We excluded them from our sample. We also made some adjustment on a few schools which had some special features. For example, we obtained proportionally a smaller number of sample students from the 22 School, as this is a private school.

The natures and characteristics of each sample elementary school are shown in Table 15.

In regard to Table 15, comparing Column k with Column 1, and Column n with Column o, the readers may notice the fact that they are fairly well in conformity. An exception is the number of upper-middle pupils of 16 and 18 Schools, which is solely because of their having a lot of students "who illegally entered from outside its school district." In other words, the exception was due to the fact that many children of middle class families, whose parents are enthusiastic about educating their children, were smuggled into 16 or 18 School from other school districts through illegal means. Except for this point, we could obtain a group of elementary schools as our sample, which had generally similar characteristics to those of our lower secondary school sample.

Table 15

Sample Elementary School

. ode umber f chool	Name of School	b. Name of Ward	c. Number of Fifth Graders	d. Name of Lower Secondary School to which all or majority graduates proceed.	e. Advancement Ratio of d.	f. Sample Lower Secondary School similar to d.
11	Umewaka	Sumida	114	Mukōjima	60.3	d. (01)
12	Itabashi Dai-go	Itabashi	74	Kami-Itabashi Dai-ni	67.1	Hamakawa (02)
13	Fujimidai	Itabashi	82	Kami-Itabashi Dai-ni	67.1	Hamakawa (02)
14	Minami-Koiwa	Edogawa	132	Koiwa Dai-ni	67.4	Hamakawa (02)
15	Suzugamori	Shinagawa	74	Suzugamori	67.5	Hamakawa (02)
16	Meiji	Kōtō	185	Fukagawa Dai-ni	81.9	Meguro Dai-shichi (03)
17	Ikebukuro Dai-ni	Toshima	164	Ikebukuro	83.6	Meguro Dai-shichi (03)
18	Sendagi	Bunkyō	203	Bunrin	88.5	d. (04)
19	Yotsuya Dai-yon	Shinjuku	97	Yotsuya Dai-ichi	90.9	Yoyogi (05)
20	Yahata	Setagaya	137	Yahata	93.6	Shōtō (07)
21	Fudō	Meguro	112	Meguro Dai-yon	94.4	d. (08)
22	Aoyama Gakuin	Shibuya	132	Aoyama Gakuin Lower Secondary School	/	/

Table 15
(Continued)

Code Number of School	g. Advancement Ratio of f. to Upper Secondary School	h. Group of f.	i. Ratio of Upper-middle of f.	j. Ratio of Upper-lower of f.	k. Estimated Number of Upper-middle by c. & i.	l. Actual Number of k. (M,F)	m. Ratio of Upper-middle l/c
11	e.	I	2.0	40.1	2	4(3,1)	4
12	66.5	I	3.4	28.3	3	7(5,2)	9
13	66.5	I	3.4	28.3	3	8(5,3)	9
14	66.5	I	3.4	28.3	4	9(5,4)	7
15	66.5	I	3.4	28.3	3	5(2,3)	8
16	84.4	II	3.6	21.8	7	28(20,8)	18
17	84.4	II	3.6	21.8	6	18(8,10)	11
18	e.	II	11.0	23.7	22	56(29,27)	28
19	92.1	III	19.3	12.3	19	23(12,11)	24
20	94.3	III	25.5	10.5	53	53(25,28)	39
21	e.	III	19.0	21.1	21	28(12,16)	27
22	/	/	/	/	/	93(42,51)	69

Table 15
(Continued)

Code Number of School	n. Estimated Number of Upper-lower by c. & j.	o. Actual Number of n. (M, F)	p. Ratio of Upper-lower o/c	q.(=1.+o.) Number of pupils Available as our sample	r. Number of boys taken as Sample Subject (UL, UM)	s. Number of girls taken as Sample Subject (UL, UM)	t. Total Number of Sample Pupils
11	46	38(20,18)	33	42	20(18, 2)	13(12, 1)	33
12	21	14(7, 7)	19	21	8(5, 3)	6(5, 1)	14
13	23	18(6,16)	27	30	7(4, 3)	12(11, 1)	19
14	37	41(20,21)	30	50	16(13, 3)	16(14, 2)	32
15	21	25(12,13)	35	30	11(10, 1)	11(9, 2)	22
16	40	38(19,19)	21	66	23(11,12)	21(13, 8)	44
17	36	24(11,13)	15	43	13(8, 5)	15(9, 6)	28
18	48	41(22,19)	20	97	42(17,25)	33(13,20)	75
19	12	19(7,12)	20	42	11(4, 7)	18(8,10)	29
20	9	9(6, 3)	7	62	19(4,15)	24(2,22)	43
21	24	12(6, 6)	11	40	12(4, 8)	14(4,10)	26
22	/	3(3, 0)	2	96	18(2,16)	17(0,17)	35
Total				618	200 (100,100)	200 (100,100)	400

Table 15
(Continued)

Code Number of School	Name of School	Characteristics of School District and/or School
11	Umewaka	Many families engaged in home industry or petty enterprise. Many factory workers of middle or lower class. Possessing inferiority complex about their social class.
12	Itabashi Dai-go	Newly developed into a residential area from an agricultural district. Many middle-class white-collars, and their living standards are a little higher than these of 14 School.
13	Fujimi-dai	Belonging to the same school district of lower secondary school as 12 School. Quite similar to the district of 12 School, as being a new residential area with many middle-class white-collars.
14	Minami-Koiwa	A new residential area similar to 12 & 13 Schools. Residents are not of a high-class but many white-collars and factory workers of middle or lower classes.
15	Suzugamori	An industrial district in the outskirts of old Tokyo. Many families are of petty enterprises, and many factory workers of big enterprise.
16	Meiji	There still are surviving traits or morales characteristic to "Kiba," a timber-yard since the Edo period. Many students are from families of wealthy merchant. Being founded nearly a century ago, this school is proud of its history.
17	Lkebukuro Dai-ni	Houses of white-collars and shops of middle or small scale are mixed. Such characteristics might be initiated about forty years ago.
18	Sendagi	A residential area of intellectuals since sixty or seventy years ago, and a quiet district. Many residents are either public officials or of managing positions, and having high educational backgrounds.
19	Yotsuya Dai-yon	Near the center of Tokyo, houses of middle class and middle-class shops slightly more in number than the former are intermixed. Many families are of considerably higher standard of living.
20	Yahata	A considerably new residential area of high-class in the outskirts of Tokyo. The parents of more than half of the students are composed of graduates of universities, higher schools and colleges, and, as for their professions, of managery personnels and professional engineers. Some families are of upper class, and forty percent of students are illegally entered from other school districts.
21	Fudo	A residential area not in the outskirts of Tokyo but fairly distant from the central Tokyo. Although slightly inferior to that of 20 School, many residents are intellectuals and with rather higher standard of living.
22	Aoyama Gakuin Elementary	Situated in a residential area near the central Tokyo. Student come from both inside and outside Tokyo, and the living standar of their families are generally high, and well averaged. The educational system of this School is consecutive and coherent from elementary, through secondary, to college.

In the case of sampling fourteen-year-old subjects, we divided those sample lower secondary schools into three groups: I, II, and III according to their advancement ratios to upper-secondary schools. In the below listed Table 16, using the data of Columns of h and t of Table 15, we obtained the number of sample subjects of elementary schools belonging to each group and then compared them with that of fourteen-year-old subjects grouped in the same way.

Table 16

Group	I	II	III
10-year-old subjects	120	147	133
14-year-old subjects	143	161	96

Compared with the case of lower secondary schools, we have noted a little increase in the number of subjects from schools with good condition and a decrease in that from bad condition. The same phenomenon will be noted, if the readers compare Column i with Column m in Table 15, and Column j with Column p. One of the reasons for this tendency is that parents of above average class are strongly inclined to make their children, who studied in public elementary schools, enter private lower secondary schools with good reputation.

We would like to add some remarks about exceptions to the preceding general principles and others.

All the elementary schools adjoined to the 02 School declined to cooperate with us.

We did not try to select any elementary school at all which is adjoined to 07 lower secondary school, because this is a school where overwhelmingly large number of students entered illegally from other school districts and it is meaningless to find out its adjoined schools in any genuine sense.

As for elementary schools belonging to Group I, we selected at first 12 and 15 Schools and obtained their cooperation. However, because of the scarcity of pupils in those schools we added further 13 and 14 Schools to the Group.

The reason why 04, 05, 07 or 08 School has just one elementary school corresponding to each was explained above. The reason why we had no elementary school corresponding to 06 School is that 06 School declined cooperation with us.

Methods of Data Collection in Japan

Problems Pertaining to Translation

The first principle in translating an English version into Japanese was to try to translate as faithfully as possible, but at the same time retain special nuances from the unique nature and custom of the Japanese language. The language activities of the pupils were also taken into consideration. After the translation was completed, pre-tests were conducted. The results were examined and each instrument was revised to minimize the responses which would not meet what the instrument tried to measure or to minimize the meaningless responses in each item. Thus the final version was constructed.

According to the special circumstances in Japan, the following were slightly modified:

a) Check List

Item 2	Texas - Tokyo
4	America - Japan

b) Student Questionnaire

In the Student Questionnaire considerable changes were made in the form of a test. The changes will be explained under "Changes of Test-Batteries" of this report as a whole.

c) Sentence Completion Test

Since in Japanese verbs and auxiliary verbs come at the end of a sentence, the form of each item is different from the original. That is, the position of the blank is different from the English original. Extreme cases are items 4 and 9. These are started with a blank and words come last. If otherwise, we cannot get responses. Second, in Japanese, in order to indicate the direct object we have to use the particle "o" and to indicate the indirect object "ni" after the noun. Therefore, if we use only one of them, the responses will be limited. If putting a noun only without a particle, the respondents will be puzzled what to do with it. Consequently, in the following the two particles "ni" and "o" were listed and the respondents were asked to choose one of them, deleting by pencil the other one:

Items 26 and 33......... kodomo $\overset{ni}{o}$ ☐ najereba ....

In Item 41 "United States" was changed to "Japan."

d) Story Completion

The following items were modified by putting social circumstances into consideration in order not to cause misunderstanding by the subjects.

Original	Japanese
Item 2 . . . was not safe and to get out of the street.	"As it is dangerous here, play somewhere else!"
Item 5 . grandmother	a relative
. . . saw a candy stand in the station.	. . . saw an ice-cream stand in the station.

In addition, in each item Indirect Narration was changed to Direct Narration by using quotation marks.
(As to the changes in Story 1 and Story 6, they will be mentioned in the following paragraph.)

e) Occupational Interest Inventory
There were no problems of translation. We made some modifications in its form.

f) Occupational Value Inventory
There were no problems of translation.

g) Social Attitude Inventory
To avoid misunderstanding, all the sentences in Indirect Narration were changed to Direct Narration by using quotation marks. Those are Items 4, 10, 22, 23, 33, 34, 35, 36, and 39. Also, in Item 6 "party" was translated as "birthday party," because in Japan children are not invited to parties, but on birthdays friends are often invited.

h) BRS (Behavior Rating Scales)
There were no problems of translation but there were some modifications in the form of the questions.

Changes of Test-Batteries

Owing to various reasons the following instruments were modified in their form of questions and in other aspects: Student Questionnaire, Story Completion, Occupational Interest Inventory, BRS and Achievement Test.

a) Student Questionnaire
Some reorganizations were made in order to get clear responses. Explanations according to the original items will be made in the following:

1-5a In the beginning of the questionnaire we put them together.
5b No question was asked of the subjects but copied from the student records.
6 Buddhism, Sokagakkai and Rissho-Koseikai were included, with Anglican and Jewish excluded. This is because of the difference in religious background in Japan. Also, in order to find out the degrees of religious earnestness we made four alternatives and asked the subjects to choose one of them.
7, 8, and 9 We asked the subjects to fill in at home putting those items on a separate sheet of paper, and to bring it to school later, because children often do not know the birthplace of their parents.

10 and 11 Omitted from the questionnaire. We got information from the student records or from the teachers.
12 In Japan we do not indicate educational level by the number of years. Also, students very rarely repeat the same grade. Therefore, we used "University" or "Lower Secondary School" in questions.
13 Omitted. We got information from student records.
14 The original question was revised so that we could get clear responses: at first asked whether their father is a company employee, self-employed or others -- they were to write in detail of their father's occupation.
15 Omitted. We got information from student records. It is not desirable from an educational point of view to ask students whether they have one parent or a step-parent.
16 and 17. Forms were changed and these two items were put together.
19 Omitted, because we could find out from 16 and 17 as well as from student record information needed.
20 and 21. In order to make them clearer more concrete questions were asked.
23 Omitted, because in Japan everybody responds as "3".
24 New item. At the request of the Center questions were asked as to their physical handicaps.

Other items were translated as they are in the original version.

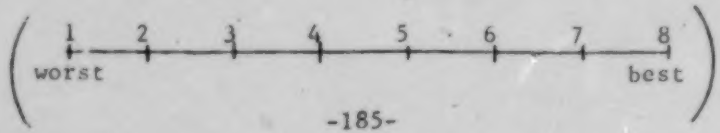
*Student Records: When a student enters a new school, his parents are asked to fill in necessary information and also his homeroom teacher is supposed to give comments. Therefore, his family structure, educational backgrounds, occupation and address of his parents, brothers and sisters are recorded. When he is promoted to an upper grade, additional information is given. The student records are usually reliable.

b) Story Completion

In Story 1 a task which is a little different from the original one is used. In the original version homework is assigned but in Japan "a test will be given on Monday." This is a big difference. The reason for this change is that the practice in the original version, "homework", is not common in Japan. This revision was agreed upon after a direct discussion with Dr. Peck. Story 6 -- "A kite" in the original version was changed to "a model plane." The reason is that in Tokyo children do not fly a kite as often and they are not familiar with it. This was also agreed upon after a direct discussion with Dr. Peck.

c) Occupational Interest Inventory

In the part of instruction for the test, occupational title and work description are differentiated with concrete examples. An eight-point-scale is given by a circle in the original and respondents are asked to check an appropriate one, but in Japan we show an eight-point-scale by a line



which is more familiar here. Therefore, changes were made in each question following this scale. The question to choose 3 jobs which they like and dislike most out of 30 jobs was revised to suit the Japanese situation. We made a boys' version and a girls' one, making an overall change. Five jobs for each of the six strata were selected to suit the Japanese situation.

d) BRS

The whole questions were revised to make them easy for the students without changing the original meanings. The number of students to be checked was clearly indicated in each question. In the original version "good children" were indicated with "X" and "bad" children with "0" but in Japan we reverse the system according to our custom.

e) Achievement Test

For the grade of Japanese and Math we used the results of nationwide academic achievement test given yearly by the Ministry of Education.

f) Miscellaneous

All the names of the people which appear in SCT and SAI were changed into Japanese names.

Items Which Were Found Impossible to Ask and Changes of Test-Scoring.

a) Items were found in each instrument which were impossible to ask. In Student Questionnaire and Occupational Interest Inventory there are some items which are found impossible to ask the respondents or which cannot cause any response. In Student Questionnaire, as mentioned above, items 7, 8, 9, 10, 11, 13 and 15 are found to be impossible to ask and are excluded from the questionnaire. Also, as to father's occupation there are many incomplete answers. Particularly, ten-year-olds just answered, "My father works in a company." We tried to increase accuracy by means of securing students' records and the information from the classroom teacher. In Occupational Interest Inventory, to the questions 1A and 2A they often answered, "I don't know." Particularly so did ten-year-olds tend to answer. In Japan, children in primary or lower secondary schools seldom discuss their future jobs with their parents. At present, parents are more interested in the further education of their children and the question of placement comes later. Also, not many children succeed to their parents' occupations. Therefore, if children want to be such, they hardly know how their parents are thinking about their future. If they answer, "I don't know" in A, there will be no answer in B.

This trend had been predicted and reported to Dr. Peck, but he wanted us to let the children answer the questions any way.

b) Changes of scoring itself

No change was made in scoring of each instrument. We followed the instructions given by the Center. However, as to occupational stratification, educational background and birthplace we gave full consideration to Japanese conditions.

Pre-test conducted

In order to find out how long each instrument would take, how difficult the sentences would be and whether there would be any misunderstanding in the questions a pre-test was conducted as follows:

Period: November, 1965 - January, 1966
Schools: In terms of social status schools from the middle class and schools from the lower class were selected.

	Middle	Lower
Fourteen-year-olds	Meguro 4th L.S.S.	Mizue L.S.S.
Ten-year-olds	Aburamen P.S.	Mizue 6th P.S. Yanagihara P.S.

Period and Time of Testing

a) Period

Fourteen-year-olds: Third grades of lower secondary schools
April 1, 1966 - July 20, 1966
Except School 01 whose test was given in the middle of March at the request of the school.

Ten-year-olds: Fifth grades of primary schools
September 1, 1966 - November 30, 1966

b) Time spent for testing (including giving instructions).

	Ten-Year-Olds	Fourteen-Year-Olds
Student Questionnaire	30 minutes	20 minutes
Check List	5	5
Sentence Completion	50	40
Story Completion	55	50
Occupational Interest	45	40
Occupational Value	30	20
Social Attitude	30	20
BRS	35	30
Raven Test	30	30
Achievement Test (Japanese)*1	45	45
(Math)	45	45

*1 At School 02 they did not participate in the National Achievement Tests. Therefore, the same tests were given to the students of that school.

Decision about the Schools for Final Testing

a) There were two principles in selecting the schools for final testing. The first was to select schools so as to represent all the schools in Tokyo in terms of social class and ecological structure. For this purpose it was convenient to use reliable maps which indicated ecological structure of the Tokyo Metropolis prepared by the National Institute of Statistical Mathematics and Tokyo Metropolitan Institute of Educational Research.

Table 17
Sample of Schools Tested: Distribution of Sample

	Umewaka 11		Itabashi 5th 12		Fujimi-dai 13		Minami-koiwa 14		Suzuga-mori 15		Meiji 16		Ikebukuro-2nd 17		Sendagi 18		Yotsuya-4th 19		Yahata 20		Fudo 21		Aoyama-gakuin 22		Total	
	1* R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S
G1	20	17	7	5	6	4	20	16	12	12	19	9	11	8	22	17	7	3	6	4	5	4	3	1	138	100
G2	18	15	7	7	16	11	21	13	13	8	19	13	13	8	19	11	12	8	3	2	6	4	0	0	147	100
G3	3	2	5	2	5	3	5	4	2	1	20	12	8	5	29	23	12	7	25	20	12	7	42	14	167	100
G4	1	1	2	1	3	1	4	2	3	2	8	7	10	6	27	25	11	9	28	18	16	7	51	21	154	100
*2 N boy	42		59		53		82		32		90		71		104		53		75		50		66		777	
girl		34		45		48		74		40		80		72		100		47		63		59		66		728

	Mukojima 01		Hamakawa 02		Meguro-7th 03		Bunrin 04		Yoyogi 05		Shoto 07		Meguro-4th 08		Toho Girls' 09		Total	
	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S
G5	56	21	37	15	19	5	37	24	25	10	23	8	31	17	/	/	228	100
G6	60	30	30	13	22	10	27	16	24	12	10	6	28	10	8	3	209	100
G7	2	2	3	3	3	2	17	9	47	31	58	37	31	16	/	/	161	100
G8	4	3	5	1	4	2	13	9	30	14	22	9	22	11	128	51	228	100
N=boy	150		125		100		162		229		183		140		/		1089	
girl		147		101		93		121		170		123		133		278		1160

*1 R ....Number registered in the Roster S .... Number of Sample

*2 N = Number of pupils tested including those not from UL and UM

The second principle was to select schools chiefly from the upper-middle-class families, which are rather small in number, for the purpose of reducing the total number of schools.

These two principles contradict each other. In order to resolve this conflict, we selected U-M schools purposely from among the schools sampled by the first principle. Since we still needed more U-M samples, we added one private elementary school and one private lower secondary school which are attended mostly by U-M subjects. The number of boys and girls, the number of upper-middle and upper-lower classes and the number of samples are as shown in Table 17.

b) Selection of subjects

Table 18

	Number of Schools	Number of Subjects	U-L	U-M
Ten-year-old boys	12	777	138	167
girls	12	728	147	154
Fourteen-year-old boys	7	1089	228	161
girls	8*	1160	209	228

* All the schools except one are coeducational.

Each group has more than 100 people. Therefore excluding incomplete ones, and considering regional factors, we made each group 100. In this case we gave priority to public schools and we supplemented with pupils from private schools.

c) Negotiation with the schools

We asked the schools 1) through the National Institute for Educational Research 2) through the board of education of each ward concerned and 3) through the members of the research team.

Difficulties encountered.

1) All through the year the curriculum is firmly set for primary and lower secondary schools in Japan. It is extremely difficult to spare time for testing. Therefore, without using the regular school hours, we conducted testing. An extreme case is for four weeks we used Saturday afternoons. (Schools 03, and 04) Immediately before testing a certain school (School 06) refused to conduct testing though they had agreed upon it.

2) Since we wanted to test 9th grades, some schools were unwilling to cooperate with us, because they were busy with the preparations for entrance examinations into upper secondary schools or placement, etc.

3) Though the principal or head teacher was willing to let their students answer the questions, in some cases homeroom teachers were reluctant to cooperate and refused to let their pupils participate in the tests. Also there was a reversed case. We came across such trouble a couple of times. The latent conflict between the teachers' union, consisting of teachers, and the administrators became explicit through the request for testing.

4) We started negotiation with the schools toward the end of the school year (February and March). After our request was accepted, some principals or teachers were transferred to other schools. In such a case we requested again. (Schools 01 and 02.)

In almost all the schools which accepted our request the homeroom teachers were cooperative. Particularly since this was a cross-cultural study, they were interested and cooperated with us.

On Administration of Parent Interview

Our Parent Interview was run according to the following procedures. Administration period: March - May, 1967. In every group (Group 1 - 8) of 100 pupils, the median of their achievement test scores was found, and then they were divided into the higher score- and the lower score-groups. In every group, five subjects were randomly selected from each of the two score-groups. The subjects' parents, 80 homes in total, were to be interviewed. The subjects' mothers were first interviewed individually after our request for it. Then we asked them to request their husbands to respond our interview. We did not decide the respondents to be interviewed beforehand, such as mothers only or both parents.

In each group the ten homes were selected for the interview, but, when some of the interviews were cancelled with some parents by their refusal or for some other reasons, we had to reselect new subjects from the same group, whose scores were similar to the original ones, and then to run some additional interviews. Before the interview we explained to the school masters and the class teachers its purpose and outline, and asked them to give the explanation for those parents who made inquiries at the school. However we did not get the schools to arrange the interview. We got addresses and all other information from the schools.

The interviewers were fourteen Education or Psychology major graduate students. They carried a certificate of the institute with them.

Table 19 shows the numbers of the interviews, held or cancelled, and the parents interviewed. The overall rates of those interviewed were 75.18 percent for Mothers and 66.29 percent for Fathers. Consequently the rates of those who failed to be interviewed were 24.82 percent and 33.71 percent, respectively. First, the interviews were arranged so that the number of those with mothers was equal to that of the request for Fathers. The rates of the interviews held in this part were 66.25 percent for mothers and 32.83 percent for fathers. However we ran some additional interviews as the next part of the research to supply the shortage of data, as mentioned above.

Table 19

Group																	
	1		2		3		4		5		6		7		8		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Total Number of Interviews	16	12	19	10	19	14	19	11	16	14	17	10	18	10	17	8	141	89
Number of Interviews Held	14	7	14	7	14	9	13	6	15	9	13	8	12	7	11	6	106	59
Number of Interviews Cancelled	2	5	5	3	5	5	6	5	1	5	4	2	6	3	6	2	35	30
Required Number of Samples	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	80	40

Including the additional interviews, the ratios of the total interviews held were 86.89 percent for mothers only and 86.11 percent for mother-fathers. The failure of the interviews was mainly due to the subjects' refusal to be interviewed on account of the pressure of business, and, besides, there were six cases owing to their house moving-out, unknown address, or child's study at Tokyo away from home. After our request for the interview we received two inquiries about its purpose at the institute and none at the schools. The two parents who made inquiry did not refuse the interview.

Concerning the research in Stage I we did not have any direct inquiries. For those subject schools whose PTA shows a great concern about school education, we arranged that the school masters or the classteachers gave the parents the explanation of our research, so that there were no troubles between the parents and us.

Sampling and Research Procedure in Stage III

Samples in this stage were selected in the same way as in Stage I, so as to be representative of the distribution of the students in Tokyo metropolitan area. Naturally this was done in order to keep the population the same as that in Stage I.

In Stage I, we first classified public lower secondary schools into three groups according to the rate of the students who enter high schools, and then selected the subject schools from each group at their rates. Next, a primary school was selected for the subject from each of the school districts where the subject lower secondary school belongs, and the subject students were decided in each of the schools according to the rate of the three groups in the population. The whole procedure of sampling is the same in this stage.

The numbers of the subject students and the subject schools are shown in Table 20 and Table 21. The school 06 refused the research immediately before the appointed day. Therefore 06 is excluded from the tables. And, in this stage, a private school, 09, was also excluded because it was not so cooperative with us, and is put in the fourth group. Yamazaki, 10, the substitute for 09, is one of the best schools in terms of the quality of the students in the high-class residential area of the western suburb of Tokyo.

Aoyamagakuin-primary school, 22, is a private school and does not belong to any school district, so it is temporarily classified into the fourth group. This school was highly cooperative with us.

We carried out the research in the primary schools earlier than in the lower secondary schools. Starting in November, 1968, we visited every subject primary school asking for cooperation with our research and obtained their consent. We also obtained the data on the students, on the basis of which we could stratify their parents' social status and select the subject students for Teacher's Observation. In December we made the second visit to each of the schools and explained the purpose and the procedure of Teacher's Observation. In this occasion, we gave the teachers a trial to make the first record for a subject in front of us. We ourselves carried out all the research, the administration of each instrument, personally for the 5th grader-subjects in their classrooms. We finished collecting all the data before March, 1969, the end of the academic year, with only one exception of 15 School, where the last research was carried out on April 9. The time required for each test was arranged in accordance with the prescription. For Raven Test, we made the subjects mark on their papers when twenty-five minutes passed after a start, as the Texas Center suggested, and finished it when thirty minutes passed.

Table 20
Lower Secondary Schools

	Stage I						Stage III	
Group	Rate of the students who enter High Schools	Number of schools in Tokyo Metropolitan area	Total Number of students	Percentage of students	Number of Samples to be drawn	Subject Schools	Required number of samples	Subject Schools
1	- 79.9	138	124,443	35.7	143	01 Mukojima 02 Hamakawa	71	02
2	80.0 - 89.9	148	140,752	40.3	161	03 Meguro-Dainana 04 Bunrin	81	04
3 4	90.0 -	87	83,525	24.0	96	05 Yoyogi 07 Shoto 08 Meguro-Daiyon 10 Yamazaki	48	05 & 10
Total					400		200	

Table 21
Primary Schools

	Stage I		Stage III	
Group	Subject Schools	Number of Samples	Required Number of Samples	Subject Schools
1	11 Umewaka, 12 Itabashi-Daigo 13 Fujimidai, 14 Minamikoiwa 15 Suzugamori	120	60	11, 14, 15
2	16 Meiji, 17 Ikebukuro-Daini 18 Sendagi	147	74	17, 18
3	19 Yotsuya-Daiyon, 20 Yahata 21 Fudo	98	49	20, 21
4	22 Aoyamagakuin-primary school	35	17	22
Total		400	200	

We requested the subject lower secondary schools in February, 1969, as we had the primary schools and also obtained the data necessary for the urgent schedule. In the public lower secondary schools, all classes are usually reorganized immediately before the new school year starts. That is, teachers and members of classes are changed. Therefore we had to run the main research, Teacher's Observation particularly, after April. Many of the schools, however, wanted to have the result of the Intelligence Test and the achievement test of Mathematics and of National Language before the date we scheduled, for the reference materials to such class-reorganization, so we ran these two tests in February and March, 1969. In two of the schools, in addition to these tests, a part of the main research was carried out before April. The research was continued in April. We visited each school and explained the purpose and the procedure of Teacher's Observation similarly in the primary schools. Once in every four weeks one of the staff visited each school, talked with the teachers, and recorded it. Generally, we had some difficulty with Teacher's Observation, but we found that the teachers made their observation precisely and profoundly more than we expected in the schools where the research has been completed. At the primary schools we had considerable complaints against this research which needs as long as nine hours, because we borrowed the students at the busiest time, the end of the academic year and the teachers naturally had trouble with it. The lower secondary schools were all highly cooperative. Because the research was done around the end of the academic year, we have many of the 5th grader-10 year old-subjects at nearly 11 years of age, and many of the 8th graders at just over 14 years. When a part of the research was carried out in March, those who were under 14 years would be just a few.

The numbers of subjects in each group are shown in Table 22.

Table 22

Group	1	2	3	4	5	6	7	8
Number of Samples	96	83	97	104	91	79	115	69

The subjects for Teacher's Observation were selected from the possible subjects on the basis of their scholastic marks and their scores on the intelligence tests. Intelligence tests are usually given to the students in Japanese primary and lower secondary schools once or twice while in school. In our case we had two kinds of tests, but we ignored the difference. For their scholastic marks, the total of marks of four main courses of study, Math., National Language, Science, Social Studies, in the primary schools, and the total of those of the four above and English in the lower secondary schools, all of which the course teachers gave the students most lately, were taken. With the Intelligence Test Scores and the school marks, the mean values and the standard deviations were calculated in each age-subjects of each school. We made ten grades for the two scores, with the mean value as the boundary between the 5th and 6th grades, and with 0.5 SD width of each grade. The first grade is the lowest and the tenth is the best. On each of the two scores, any subject was reconsidered in terms of these grades and then given new grades. If there is more than 1 SD difference between the grades of the two, Intelligence Test Score and School Mark, with the same subject, in either direction, such subjects were chosen for the Teacher's Observation. Those, whose grade of School Mark is higher than that of Intelligence Score, are over-achievers, and those whose grade of Mark is lower are under-achievers. We took enough extra samples, but in some cases shortage of samples occurred and we had to take some of those with the grade difference more than 0.5 SD. Samples with such small difference are fairly few in the primary schools, but such cases are more than half in the lower secondary schools, and those with 1 SD difference were fewer than we expected. Of course, those with the bigger difference were preferentially chosen for the observation. Next, each of the teachers was asked to observe the subject students, who are in his charge. We intended to assign two subjects to each teacher, but we had to reduce the number of the subjects when more than five happened to be assigned to some teachers. Further, some students and teachers gave many incomplete answers in the tests or the records. We had to exclude such subjects and such teachers (we had only one teacher like this) from the list of the subjects. Table 23 shows the numbers of the subjects who furnished us with complete data.

Table 23

Group	5 or 1		6 or 2		7 or 3		8 or 4	
School	over	under	over	under	over	under	over	under
Lower Secondary Schools								
02	4	2			3	1	1	
04	1	2		1	1	2	2	
05	1	2	6	3		2	2	4
10			1	2	2	1	1	2
Total	6	6	7	6	6	6	6	6
Primary Schools								
11	2	1	1			1	1	
14			1	2	1			
15		1	1					
17	1	2	1	3			2	
18	1	1	2	1			1	1
20					1			1
21					1	2	1	1
22					1	2		1
Total	4	5	6	6	4	5	5	4

When we informed the teachers of the names of the students whom they would observe, we often met such questions, why and how we could choose only such peculiar students. Our answer to them was deferred until the observation finished.

As clearly shown in Table 22 and Table 23, the samples actually obtained were much more than the required number. However, on the other hand, as mentioned above, in the primary schools we kept 20 percent extras evenly from each school and cut down the rest in the following way. First, the subject students for Teacher's Observation were preferentially kept. Second, the subjects who made incomplete responses to the instruments, for instance, all or many non-responses to all or some instruments by their absence or other reasons, were excluded. Among such students there were some subjects for Teacher's Observation and they naturally were dropped from the observation sample. And still, among the samples survived through such procedure, two did not respond to the last page of the occupational interest test. We called them to fill in the blanks when we later visited their schools. Then the final samples, of the required number and 20 percent extras, were randomly selected from the above students. Table 24 shows the numbers of the samples in each school. When we compared the figures of the last row with the required numbers shown on Table 21, the result seemed to be satisfactory.

Table 24

Group	1	2	3	4	Total	Number of samples in each school group
School						
11	9	16	2	1	28)	
14	9	8	1	1	19)	59
15	5	4	2	1	12)	
17	11	15	3	5	34)	80
18	20	9	5	12	46)	
20	4	2	19	15	40)	63
21	1	5	9	8	23)	
22	1	1	19	17	38	38
Total	60	60	60	60	240	

Some figures shown in previous paragraphs, on the method of sampling fourteen-year-olds and ten-year-olds, are slightly different from the equivalent figures appearing in the present report. The difference is caused by the difference of the time when those figures were obtained. In summary, it may be said that the sample used in our study fairly well represents the age population of Tokyo. However, as it may be apparent from the above descriptions, it does not represent the population of the whole nation.

Among the schools where tests were administered, those schools which were not quite cooperative were indicated. All other schools were very favorable to us. When there were one or two capable teachers in the school who were young or middle aged, had strong leadership among the teachers, and were interested in study, then always very cooperative the school was with us. About one third of all the schools which participated in our study were of this kind. To express our gratitude to their cooperation we presented a copy of our domestic report (209 pages, published in May 1970, sent to all stations) to all participating schools, including those which cooperated in our pre-tests.

Gratitude for their kind assistance is greatly due to Mr. Ikuo Amano, National Institute for Educational Research and Mr. Tosuke Fujiwara, Tokyo Metropolitan Research Institute for Education in the collection of necessary data.

SECTION IV

METHODOLOGY

COPING STYLES AND ACHIEVEMENT: A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

The University of Texas at Austin

1981

INSTRUMENTS

INSTRUMENT DEVELOPMENT

All of the instruments utilized in this study were designed especially for use in this cross-national study. In the following section each instrument will be described in some detail. This section also describes the general procedures that were carried out in order to achieve conceptually and psychometrically compatible instruments in all the countries. The instruments were not simply developed by a researcher in one country and then applied to other countries. While the prototypes of the instruments were suggested by the principal investigator, the decision to use each one, and all later decisions on item-selection and scoring, were made by the total international team, in an effort to represent cultural viewpoints that might be important to consider in defining and developing an internationally valid theory of coping.

In the effort to achieve semantic and conceptual similarity only those items and concepts were selected which could be universally represented in all of the languages. This, of course, eliminated some notable cultural differences at the outset. Unless the concept was familiar in all the countries, it could not be used in a test item. The final instruments were developed in a series of international conferences. The questionnaires were composed initially in English; the items were then translated into the language of the participating countries with the aid of linguistic and educational experts. Following this initial translation, the items were then re-translated back into English by independent translators, in an effort to determine semantic equivalence with the original version. Whenever an item did not emerge as it should from the back-translation, it was modified and the whole translation process was repeated. The items were then pilot-tested with small samples of children. Whenever an item was not understood by the children in the way intended, it was modified or replaced. This testing of items was done rapidly and repeatedly in the early months of the project. Memos describing the pilot test findings in each country were immediately air-mailed to all other countries. The staff at the Central Station strove to collate this cyclical correspondence, arrive at a final determination of usable items, and notify all stations. Needless to say, only the remarkable degree of good humor, objectivity, fast, hard work, and patience displayed by all members of the international team permitted expeditious resolution of the questions. This procedure resulted in the selection of a final set of items for each instrument that could be represented similarly in each of the languages.

A variety of materials regarding these instruments can be obtained through the R&D Center for Teacher Education at The University of Texas at Austin. Administration and coding manuals are available for each of the instruments. Virtually all of the instruments, with few exceptions, are on hand in six languages: English, Spanish, Portuguese, German, Yugoslovian, and Japanese. Means and standard deviations exist for all variables in all countries. Finally, reliability data are also avialable for each instrument.

Demographic Instrument -- Robert J. Havighurst

The Demographic instrument was a brief questionnaire, administered to the child, designed to elicit basic information regarding the child's age, sex, grade, and family. It asked questions regarding father's occupation and schooling, family size, birth order, who the child lives with, whether parents are dead or separated, whether the child works, and whether certain possessions (e.g. TV, car) are owned by the family.

Story Completion - Margaret Miller, Elaine (Michelis) Van Avery, and
Robert F. Peck

Although the history of the Story Completion instrument goes back to 1923, when McGarth used a story completion instrument in her study of children's moral development, it is only since 1950 that any great use has been made of it in the research field. Before that time it was regarded primarily as a clinical tool, confined to individual cases, with little attention given to validity and reliability.

The work of the Andersons (e.g. 1954, 1961a) was a major stimulus for the inclusion of the Story Completion in the Cross-National Study. The Andersons not only used the technique cross-culturally, but also obtained extensive data on a large number of children. In this way, they took the instrument out of the clinical setup and attempted to build up normative data, an essential ingredient to the use of the Story Completion in research.

The purpose of including the Story Completion instrument in the Cross-National Study was for it to form part of an assessment battery for measuring problem-solving skills, or coping. It had been decided by the investigators that what was needed initially was an open-ended instrument for collecting information about children; ideas and attitudes toward competence in the areas of Task Achievement, Anxiety, Aggression, Interpersonal Relations, and Authority in the participating countries. By using a free response method, it was believed children would have maximum opportunity to show the kinds and diversity of reactions which characterize people in the different countries represented. Examination of such exploratory data could then lead to more valid specification of dimensions, thus allowing them to be categorized and analyzed more objectively.

The final Stage III version of this instrument involved completion of seven stories, each allotted a fixed and equal amount of time. An elaborate, objective scoring system was devised to describe a series of steps (dimensions) along with their various alternative behaviors which would completely describe coping behavior. There were, first, a number of dimensions which attempted to classify motivation, followed by a series of dimensions describing various aspects of problem-solving behavior from beginning to end. These dimensions were, in effect, simply extension of five major coping style dimensions of (1) Confrontation-Avoidance, (2) Engagement, (3) Self-Other Initiation, (4) Implementation, and (5) Affect and Persistence were also included. Indeed, the development of this instrument involved a painstaking process of specification of the dimensions of coping behavior. This process was a powerful contribution to the development of a comprehensive theory of effective behavior. (Peck et al., 1979)

However, despite the tremendous effort involved in instrument construction and the considerable promise of this approach, the Story Completion in the end lacked validity; it did not relate to children's success in school. For whatever reason, be it social desirability, too much fantasy, or the structure of the stories themselves, it did not prove useful as a predictive instrument.

Sentence Completion -- Elaine (M..chelis) Van Avery, and Robert F. Peck

Historically, the Sentence Completion technique is a direct descendant of two earlier techniques: (a) the word association as popularized by Jung, and (b) the incomplete sentences used by Ebbinghaus as a measure of scholastic achievement. The basic technique was first systematically used in the late 1920's and 1930's by investigators such as Payne and Tendler (see Bell, 1948; Forer, 1960) to elicit information about response style and emotional reaction. Rohde (1957) developed the prototype of the current Sentence Completion tests, for use with school children.

The technique underwent rapid development during World War II as a screening and evaluation test. Peck and colleagues (1956, 1959a, 1962) demonstrated the predictive validity of the Sentence Completion method in several studies.

For the purposes of this research, the Sentence Completion was designed to elicit the children's attitudes and coping styles in the five behavioral areas: Task Achievement, Authority, Aggression, Interpersonal Relations and Anxiety. The questionnaire consisted of forty incomplete sentences concerning either attitudes or coping behaviors about the behavioral areas. For example, an attitude item for Task Achievement was "I think school is ________." A coping item for the same area was "When there is something difficult to do, I ________." Several lines were allowed for the child to write his/her answer. Thirty-two codes were developed to categorize responses to the coping stems, including overt actions, absence of behavioral response, affect expressed, if any, and mode of expression of affect. Fourteen content codes were applied to the attitude stems, including such categories as positive responses, negative reactions, descriptions of action, etc. The response codes for the coping stems were then scaled on four dimensions:

Stance - confrontation vs. avoidance of the problem
Engagement - overt action of a problem-solving nature vs. lack of action
Affect - the expression of positive, neutral, or negative affect
Coping effectiveness - two criteria:

(1) effectiveness - How effective was the behavior judged to be in resolving the problem, and

(2) Acceptability - How acceptable would this behavior be to the whole society?

Ideally, it would have been desirable to score this instrument for all nine of the dimensions of coping behavior (Table 1), but the nature of the instrument does not permit this. The brevity of the responses rarely allows room for people to describe their thought process, show repeated trials (persistence), or tell whether they would be invoking others' help (initiator, solver, implementor, use of aid or advice). The achievement of a solution can be assessed; but usually, not the person's self-evaluation of that solution. Thus, only three dimensions of coping behavior, and affect tone, could be scored on this instrument.

Fortunately, this instrument showed substantial validity in predicting achievement (whereas the more fully scorable Story Completion showed almost none). This was expected, since Sentence Completion instruments, psychometrically scored, have shown the best validity of all free-response instruments in predicting a wide variety of criteria such as school performance, mental health, and social adjustment (Rohde, 1957).

Occupational Values Inventory - Robert F. Peck and Kenneth M. Miller

The Occupational Values Inventory was a forced choice measure designed to tap children's work values. Though developed specifically for this research project, it was based to a very large degree on the work of Donald E. Super and his colleagues. (Super, 1957) Super's instrument, the "Work Values Inventory," was revised for this Cross-National Study to include slightly different values and more concrete wording, suitable to younger children. The resulting Occupational Values instrument was composed of fifteen work values presented in a series of all the possible sets of paired statements in which the subject must make a choice as to which value in the item pair he/she prefers.

The fifteen values comprising this instrument were: (1) Altruism, (2) Intellectual Stimulation, (3) Success, (4) Self-satisfaction, (5) Creativity, (6) Esthetics, (7) Variety, (8) Surroundings, (9) Associates, (10) Management, (11) Economic Returns, (12) Prestige, (13) Security, (14) Independence, and (15) Follow Father. The following is an example of the statement pairs:

(a) Work in which you could lead other people (Management)
(b) Work in which you can one day become famous (Prestige)

Responses are scored according to the frequency of choice for each value.

Occupational Interest Inventory -- Robert F. Peck

Several well known standardized inventories were available to measure Occupational Interests as this research got underway. These included the Strong Vocational Interest Blank (Strong, 1943), the Kuder Preference Record (Kuder, 1960) and many others. It was decided that none of these were advisable for this research, however, for the following reasons: (1) Although a few of these instruments, like the Strong & Kuder, had been used in several countries, none of them as far as we knew, had been standardized in all the countries involved in this project. (2) Generally speaking, these instruments reveal professional interests in terms of broad areas and not in terms of a specific occupation; and (3) none of them give us the following information which was considered relevant for the purposes of this research, namely: Besides knowing the particular occupation the individual wants to follow, how great is the prestige the subject attaches to this chosen occupation and to his parents' occupation; what are the parents expectations (according to the children's report) regarding their child's future occupation.

In fact, development of the Occupational Interest Inventory (OII) involved several revisions. Basically, the instrument consisted of questions having to do with the children's aspirations (what job would you like to have when you grow up?) and expectations (What job do you think you probably will have when you grow up?) as well as questions about the children's perceptions of parents' expectations of themselves, and of parents' status. The child was also asked to rank various occupations.

While several scores were computed, including discrepancies between aspirations and expectations and between aspirations and parents' status, two simple indices proved most useful to this research. The first was Occupational Aspirations. The children were asked what job they would like to have when they grow up. Responses were scored on Havighurst's six-point occupational prestige scale. The second was Educational Aspirations. The children were asked to state the ultimate amount of education they wanted. This was also scored on a six-point scale. Both of these indices proved to be powerful predictors of children's success in school.

Views of Life -- Rogelio Diaz-Guerrero and Robert F. Peck

The Views of Life instrument was designed for use with school children who are at least 13 to 14 years old, and was used only with the second (Stage III) sample. The instrument is composed of 60 pairs of statements, constituting a variety of scales. The instigation of this instrument stems from Diaz-Guerrero's notion of a dimension of active vs. passive coping styles which was thought to discriminate between various cultures. Thus, many of the scales were oriented toward aspects of this active-passive dimension. Robert Peck suggested including additional scales representing other dimensions of coping behavior and several other concepts which previous research or theory suggested would predict and explain achievement.

The final instrument consisted of 20 scales corresponding to (1) dimensions of coping (subsumes most of the active-passive scales), (2) aspects of motivation, and (3) other personality characteristics.

The coping scales are:

Action vs. Inaction - Which is preferred in the face of impending situations?

Immediate vs. Delayed Action

Rate of Action - quickly or slowly

Independence vs. Obedience - Does the individual prefer independent action in solving problems or need approval and depend on people in authority?

Confrontation vs. Avoidance - Is it best to face up to and consider problems or to avoid them?

Self vs. Other Initiation - Is one a self starter or does one require others' direction to get going?

Self vs. Other Solver - Is it best to come up with one's own solutions to problems or to listen to and obtain ideas from others?

Self vs. Joing Implementation - Does one prefer to do all work by oneself or is it preferable to work with others?

Instrumentality vs. Fantasy - Is more satisfaction gained from actual accomplishment or from daydreaming?

Exaggeration of Activity and Passivity under Stress - Under stress, is the preferred behavior an exaggeration of activity or an exaggeration of passivity?

The motivational scales are:

Task Achievement vs. Interpersonal Relations - Which is the more important aspect of a situation?

Competition vs. Cooperation - Which is preferable?

Intrinsic vs. Extrinsic Work Values - Is work valued for its own sake or for the rewards it may bring?

Earned vs. Bestowed Status - Is satisfaction with status based on the manner in which it was obtained or on the superficial end product?

Scales which measure the personality characteristics include two major constructs:

Internal vs. External Locus of Control - Can humankind control the general environment?

Internal vs. External Academic Locus of Control - Does the individual perceive himself as controlling his individual academic progress?

Positive vs. Negative Self-Concept - Does one have a positive or negative self-concept?

Additionally, three other personality characteristics were examined:

View of Life - Does one view life in general as complex and difficult or enjoyable and easy?

Cautious vs. Bold - Which is the preferable trait?

Emotional Control vs. Emotional Uncontrol - Is control of affect desirable or should one freely express and accept his feelings?

Social Attitudes Inventory -- Guy Manaster and Robert F. Peck

The Social Attitudes Inventory (SAI) was devised to elicit children's evaluations of their own coping behavior. The questionnaire was totally replaced by a new instrument for the second (Stage III) sample. (Confusingly, the same title was retained.)

The SAI was constructed specifically for this study. It has little historical background.

In Stage I, the SAI consisted of 40 multiple-choice items, each consisting of a hypothetical problem situation. For example: "Ernie tries to make his parents change their minds by proving to them that they are wrong." For each item the subject must answer two questions: "Am I like him?" Response: "Yes or No," and "Do I want to be like him?" Response: "Yes or No." Each of the 40 items in this instrument was classified in one of the five behavior areas. The response-choices were classified as Active or Passive Coping Behavior, and Active or

Passive Defensive (non-Coping) behavior. Active Coping behavior was described as problem-solving behavior which is overt, self-initiated, implemented without requesting aid or advice from others, and directed toward the source of the problem. Passive Coping behavior encompassed such reactions as covert or ideational problem-solving, other-initiated problem-solving, asking for or receiving aid or advice in problem-solving, or accepting the situation as it existed. Active Defensive behavior consisted of such overt, non-problem solving actions as overt aggressive or attacking behavior, or engaging in unrelated activities rather than facing the problem. Passive Defensive behaviors were such actions as covert affective responses, withdrawal, or failure to act.

In scoring the instrument, since responses to the second question, "Do I want to be like him?" were greatly affected by the social desirability of the answers, these data were not analyzed. In analyzing answers to the first question, each subject received four scores, for the number of times the subject chose each of the four types of responses: active coping, passive coping, active defensive, and passive defensive.

The totally new Stage III instrument consisted of 28 multiple-choice items, representing each of the five behavior areas: Task Achievement, Authority, Interpersonal Relations, Anxiety, and Aggression. Each item describes in one sentence a problem situation for a hypothetical child. Following each problem, four courses of action are presented. The subject is asked to choose the course of action which he/she would follow. Two alternatives represent Good Coping responses and the other two represent Poor Coping responses. Each child received a "percent of good coping" score for each area of Task Achievement, Authority, Aggression, Interpersonal Relations, and Anxiety.

Behavior Rating Scale - Eiichi Kajita and Robert F. Peck

The Behavior Rating Scale (BRS) was a version of the peer nomination technique, for use in a classroom setting. There is, of course, a long history of the use of rating methods in psychology. The Cross-National BRS was developed along the lines of the "Guess Who Test," originally devised by Hartshorne, May & Maller (1929).

There were seven items in the original version: (1) Academic Task Achievement (Who works hardest at their lessons?), (2) Non-Academic Task Achievement (Who works hardest at outside activities?), (3) Authority (Who gets along best with teachers and other grownups?), (4) Interpersonal Relations (Who is best in working with others?), (5) Anxiety (Who gets upset most easily when things go wrong?), (6) Aggressive Self-Assertion (Who fights the hardest to get their way?), (7) Coping with Aggression (Who can work it out when another person is angry with them?). In Stage I, each student was asked to nominate the 25% of their class who best fitted the description; and the 25% who least fitted it.

In the Stage III instrument, several of the items were altered for clarity, or to limit them to questions children felt they had the information to answer. The Stage III BRS consisted of 9 items: (1) Academic Task Achievement (Who works hardest in school?), (2) Authority Relations in School (Who gets along best with teachers?), (3) Interpersonal Relations (Who gets along best with the students in your class?), (4) Persistence (Who can usually be counted on to help work at tasks until they are finished?), (5) Self-Assertiveness (Who usually gets their own way?), (6) Initiation (Who starts working at things that need to be done without having to be told?), (7) Solver (Who has the best ideas?), (8) Control of Aggressive Affect (Who loses their temper?), (9) Control of Anxiety (Who worries most?). They were asked to nominate the 10% of their class who best fit this description. Negative nominations were dropped because teachers in Japan found them objectionable. A child's score on the BRS was the algebraic sum of positive and negative nominations in Stage I; in Stage III, the sum of positive nominations received from peers. Both scores were corrected for class size.

Aptitude and Achievement Measures

The measure of aptitude used everywhere in both stages of data collection, except at the Chicago station, was the Raven Progressive Matrices '38, 1956 Revised Form, Set A-E. This was selected as a relatively culture-free measure of "fluid" intelligence. The Chicago area schools asked that the already available California Test of Mental Maturity scores be used as the aptitude measure. To measure reading achievement, most countries utilized the Inter-American Series Test of Reading in both samples. Japan and Germany each had their own school and curriculum specific test for reading achievement. Math achievement was assessed in most countries by the Metropolitan Achievement test for the 10-year-olds and the UNESCO math achievement test for the 14-year-olds. Chicago schools administered the California Achievement test as a part of their school program and the project collected these scores. The grade point average for the students was computed on the basis of their grades in the four major subject areas: Language, Mathematics, Social Studies, and Natural Sciences.

Parent Interview - Kenneth M. Miller and Carl F. Hereford

The Parent Interview dealt with interviewing a sub-sample of parents of the children studied in Stage I. It was hoped that information gained would help validate the Stage I self-report data collected from the children and also provide some cross checks on the information given by the child on the Demographic Questionnaire and the Occupational Interest Inventory.

Apart from validating aspects, it was hoped that three main types of information would be obtained. The first was coping style information, which was covered from several points of view. One was concerned with the child's actual coping style as seen by the parents, in the areas already being investigated, i.e., Task Achievement, Anxiety, Aggression, Authority, and Interpersonal Relations. Information was also obtained from the parents about their own coping styles in a variety of situations under the same area headings.

The second kind was occupational information. This was information relevant not only to occupational interests but also to occupational values. In the latter case the parents were asked to rank the fifteen occupational values to permit a direct statistical comparison with the children's data. In addition, for working parents, information was obtained about their own occupational history, attitudes and values toward their jobs and their coping behavior while working.

Third was achievement information. Questions involving Task Achievement by the child were divided into the two major areas of Academic and Nonacademic Achievement. Nonacademic Achievement related to jobs or chores in the home and for 14-year-old children to paid jobs outside the home. Questions concerning Academic Achievement centered primarily around homework, as this was the area of education with which parents were most familiar. Questions in these areas included not only the child's performance in the homework area but the parents' participation and support both for homework and generalized educational endeavors. In addition, the parents were asked for their evaluation of the child's performance in school.

Although the interview was primarily concerned with the child's coping behavior and the parental factors which influence it, thus relating directly to Stage I, the work of a number of previous investigators was also drawn on, in designing the questions. The studies of Dave & Wolf on home environment were considered in regard to the various content areas and in particular to academic task achievement. Questions were also included to permit testing of the Bowlby (1958) hypotheses regarding prolonged separation of young children from their parents. The work of Sears Maccoby & Levin (1957) and the Berkeley growth studies (Macfarlane, 1939) were also considered with regard to format question construction, the source used most heavily for initial ideas was the work of Sellitz, Jahoda, Deutsch, & Cook.

The final interview form consisted of one hundred nine questions plus the ranking of the fifteen occupational values. Each value was printed on a separate card and the parents placed these in order of preference. For the most part, the parents' responses to the questions were recorded verbatim by the interviewer. A few of the questions, such as age, for example, were pre-coded and a few of the responses were recorded along a dimension such as degree of satisfaction or importance. For example, responses to the question "How important do you think school is?" were coded as --

Most Important
Very Important
Important
Unimportant
Worthless

In these instances of coded questions, however, there was almost always a following probe so that a verbal response from the parents was also available. In the case of the example above, the probe was "Why?"

In addition to the actual questions there was a section that dealt with what were termed post-interview ratings. These dealt with dimensions of behavior that it was thought were embodied in coping style. As these dimensions were not finalized until after the interview questions were constructed there was some doubt as to whether sufficient information on the dimensions would be obtained from the actual questions. The interviewers were, therefore, asked to complete a five-point rating form for each of the dimensions in the behavior areas of Task Achievement (Academic and Nonacademic), Anxiety, and Parent/Child Interaction.

The purpose of these ratings was primarily to encourage the interviewer to get as much information as possible. If the interviewer knew that he had to make these ratings it was thought that he would be more thorough in collecting the information during the interview.

In addition to the interview form itself, a lengthy manual of instructions to interviewers was constructed. In addition to general instructions this document contained a question-by-question explanation of the purpose and intent of each question and its relationship to the coping dimensions. A copy of this manual was given to every interviewer.

When the original interview form came to be translated it was agreed that the layout could be changed to suit the needs of individual stations, though sufficient space for full recording had to be maintained. However the numbering and sequence of sections remained unchanged.

Method of Coding. The verbatim responses to the questions were coded using a system of content categories. These coding categories were developed from a sample of at least twenty-four interviews from each station. The translated responses from each station for each question were typed on small cards that were placed in empirical content categories by independent judges. The consensus of these judgments formed the content coding categories for each question. At this point a deliberate attempt was made to use as many and as specific categories as possible in order to preserve the richness of verbal response. It was felt that categories could be eliminated or collapsed later whereas it would be impossible to discriminate new categories at a later date.

Not all the coding categories were, however, empirically derived at this stage. Some of the categories from the Demographic Questionnaire were used intact and some modifications of the Sentence Completion coding categories were used to give direct comparability with the children's data.

A preliminary coding manual was developed by the Austin and London stations and sent to all stations, who then sent back their suggestions and modifications. The initial manual was revised in the light of these criticisms and the final manual was then translated by each station.

A complex system of coder training and calibration was devised to ensure comparable coding across all stations. The first step was to achieve comparability between Austin and London on a group of twelve interviews from each station. These twenty-four interviews were coded independently by at least two coders in each station, who then reached agreement within stations. The consensus results were then compared and differences discussed by letter and by telephone. When Austin and London were calibrated, i.e., interpreting the manual in exactly the same way, each of the other stations was asked to code twelve of their own interviews, using two or more coders, who then reached consensus and sent the results to Austin and London. These interviews were independently coded in both Austin and London and the results compared with the original station's coding. Differences were discussed and agreement reached. In addition there were some face-to-face meetings among subgroups of stations to discuss and improve coder reliability.

When the period of calibration was finished, the production coding of the entire sample of interviews was undertaken in each station. In the production coding, each interview in each station was coded by at least two independent coders and the final code given was the consensus of these two individuals. The coders in each station were the same individuals who had gone through the calibration process with the Austin and London stations.

This elaborate and time-consuming process was designed to provide the maximum comparability and reliability of interview data from all stations. Although laborious, the use of independent coders and the calibration of these coders across stations proved successful. This method had the additional advantage of greatly reducing the possibility of clerical errors.

Summary

In this study eight instruments were designed and developed to study coping, motivation and values. These instruments were translated into the languages of the participating countries. The eight instruments were: Demographic Instrument, Story Completion, Sentence Completion, Occupational Values Inventory, Occupational Interest Inventory, Views of Life, Social Attitudes Inventory, and Behavior Rating Scales. Additionally, Parent Interview was constructed. Results from these instruments are presented in this volume. (See Appendices A-N for the instruments.)

Table 1

SEQUENTIAL SKILLS IN THE COPING PROCESS

Non-Coping Behavior	COPING BEHAVIOR			
	Coping Acts	Additional Components of Coping Effectiveness	Quality of Coping	
			Moderate	High
1. No	CONFRONT			
AGGRESSIVELY		CONSTRUCTIVELY	Delayed	Immediate
2. No	ENGAGE		Procrastinate	Act; allowing for reflection
3. Other		Who INITIATES?	Joint	Self
4. Yes, UNSOUGHT		AID or ADVICE used?	Self-sought	Not used
5. OTHER		Who conceives of SOLUTION?	Joint	Self
6. OTHER	IMPLEMENT		Joint	Self
7. GIVES UP, BLAMES OTHERS, OR REACTS AGGRESSIVELY		PERSISTENCE	Seeks help	Alters the situation, or recognizes it as genuinely unsolvable.
8. UNSUCCESSFUL	ACHIEVE SOLUTION		Delayed solution	Immediate solution
9. NEGATIVE		SELF-EVALUATION OF OUTCOME	Mixed; or no strong evaluative reaction	Positive

METHODS OF DATA COLLECTION

Introduction

The Cross-National Study of Coping Styles and Achievement took place in three stages.

Stage I of the study built the conceptual system, designed the instruments, and applied them to a stratified sample of children in seven countries.

Stage II, interviews were conducted with the parents of ten percent of the children tested in Stage I. This was an effort to identify patterns of family experience which might have influenced the way the children learned to cope with problems.

In Stage III of the study, refined conceptualizations and instruments were developed out of the experience gained in Stage I. These were applied to a new sample of children, in eight countries, in 1968-70, both to test the revised system and to determine what patterns of coping behavior were stably observable in the two different samples, thus permitting sound generalization about age, sex, class, and cultural patterns of coping behavior.

This chapter describes methods of data collection. The first part reviews procedures used in Stages I and III. While this section was primarily written between stages, the procedures apply to both stages. A brief statement regarding the Views of Life instrument was added as this instrument was used only in Stage III.

Subsequent to description of procedures used in Stages I and III, a brief explanation of Stage II data collection is given.

Stages I and III

In describing procedures applicable to Stages I and III, data collection is considered in two parts -- the instruments and the field work. The chapters in which the development of the individual instruments are discussed will have made clear the long and careful attention that was given both to the theoretical basis of each of the non-standardized tests, and to the selection of items or questions consistent with the theory.

In the course of developing the content, continual attention had to be given to the cultural suitability of the situations selected, this being particularly true of such instruments as Story Completion and Social Attitudes. While it was accepted that conceptual equivalence of items was a basic requirement to permit comparison, it was agreed that wherever possible the content should be identical for all stations. For example, one of the original items in the Social Attitudes Inventory was concerned with a child arriving at a party. Both Italy and Japan found that this item was not applicable to their cultures as children in these countries seldom have parties. In the final version of the instruments it was hoped that the dual aim of concept and content equivalence had been reasonably well obtained.

However, when the station representatives returned to their own countries and translation of the instruments began, some minor difficulties were experienced. The staffing plan allowed for a member of staff in each country to translate the instruments, and for back translation to be carried out by linguistic consultants at the Central Office. The exceptions were Germany and Yugoslavia, where work was conducted using local funds and therefore both phases of this task were carried out in these countries.

In the Demographic Questionnaire there were certain questions that were not appropriate for a particular country, for example, divorce in Italy.

In the following pages the particular problems of each country are described, instrument by instrument. The discussion relating to the preparation of the instruments for field use covers four points:

1. Translation
2. Item changes from the agreed instrument
3. Items not able to be asked
4. Necessary changes in scoring

These four points are taken for each instrument, across countries, on the assumption that the reader of this chapter will be more likely to be interested in the use of one or more instruments, and not in secondary cross-cultural comparison through an analysis of country similarities and differences.

Translation has general as well as specific instrument connotation. It is more of a problem for cultures where the grammatical structure is very different from that of English, but even English speaking countries find it necessary to "translate" American English into the form that is more usual for them.

Where there is no comment from a country, there were no translation problems and these are given here. Specific problems on items within an instrument are presented at the beginning of the section dealing with that instrument.

In Japan the first principle in translating an English version into Japanese was to try to translate as faithfully as possible but at the same time to retain the special nuance from the unique nature and custom of the

Japanese language; the language activities of the pupils were also taken into consideration. After the translation was completed pre-tests were conducted. The results were examined and each instrument was revised to minimize the responses which did not meet with what the instrument tried to measure or to minimize the meaningless responses in each item.

In Mexico it was found that many apparently cognate words that, in English, are used in one sense, can, in Spanish, have another meaning and may even have a different emotional implication.

These problems were resolved in the following way. The Secretaria Education Publica was asked to supply the school programs that the Institution had made for students of the fourth Primary and second High School grade. From these programs specific analysis was carried out on those referring to the study of the national language; vocabularies, and grammatical syntax, with the object of determining ahead of time the level of understanding of the language that could be utilized in the translation of the instrument without detriment to the content. The teachers of both age levels were asked to serve as judges because they were more familiar with the problems involved. The translations were then judged by the research assistants in order to ascertain that there were no modifications in the content of the items that the items sounded natural.

DEMOGRAPHIC QUESTIONNAIRE

Brazil

There was one modification which was made in a number of countries, i.e. to ask for the child's class in school.

Item 23 -- Is your present school course one that

1. could lead to university?,
2. could prepare you for a specific trade or occupation?,
3. is a general course with no specific occupation or course of study in view?

This was not asked in Brazil because it is not relevant for children of sample age, as it is only after fourteen that such courses begin.

England

One of the educational authorities in whose schools the testing was carried out refused permission to ask the question (No. 13) about parents' education. Two versions of the instrument were prepared. Ultimately, in order for there to be comparability within the English sample, the information was not used in deciding socioeconomic status.

Both education authorities were reluctant for the question concerning religion to be asked and this was also eliminated.

Question 11 was not asked because in England it is rare for a child to stay in a class for two years or to skip a class.

The question on child's education was asked in three parts: the first was concerned with age on leaving school, the second with the final type of examination to be taken, and the third with tertiary education, if any. In this way it was hoped a valid picture of the child's actual expectations could be gained.

Question 14 (father's occupation) had a supplementary question concerning the mother's occupation, if any, and whether she went out to work, as opposed to working at home.

Germany

Item 6: "Jewish" and "Anglican" -- were left out, and minor changes were made in items --

7: "Where were you born?" - "In which town did you live most of the time?"
8: "Place of father's birth" -- "Father's age?"
9: "Place of mother's birth." -- "Mother's age?"
13: Was not asked. Instead, the mother's job, (if not housewife) was asked for.

Italy

The question about marital status was omitted for two reasons: school staff considered the matter too private to be asked, and the research team considered answers would be inaccurate when officially Italy is a country where divorce is not permitted and children are unwilling to admit to separation of parents.

Japan

Some reorganization was made in order to get clear responses, and the questions for which the information could be obtained from school records were omitted. These were questions 5b, 10, 11, 13, 15, and 19 (see Demographic Instrument, Appendix A). Explanations according to the original items are as follows:

1-5a -- These were put together at the beginning of the questionnaire.

6 -- Buddhism, Sokagakkai (Zen) and Rissho-Koseikai were included, and Anglican and Jewish excluded. Also in order to find out the degree of religious earnestness, the subjects chose from one of four alternatives.

7, 8, and 9 -- The subjects were asked to obtain this information and to bring it to school later, because children often do not know the birthplace of their parents.

12 -- In Japan, educational level is not indicated by numbers of years. Also, students very rarely repeat the same grades. Therefore, "University" or "Lower Secondary School" was used in these questions.

14 -- The original question was revised, so that it was possible to get clear responses, at first asking whether the father was a company employee, self employed, or other, and then to write in detail the father's occupation.

16 and 17 -- The forms were changed and these two items were put together.

20 and 21 -- In order to make this clearer more concrete questions were asked.

23 -- Omitted, because in Japan everybody responded "3".

Mexico

The instruments administered by Mexico were the ones approved originally at the first conference of the Cross-National Project in Austin. The items of all the instruments were applicable, with the exception of those items that in any way introduced religious themes. This was due to the fact that the official education system forbids religious education, and for that reason all religious themes were excluded from consideration in the schools. These questions had to be excluded in general from the written document, but the question was asked individually of each of the subjects.

Chicago

The question on religion was not asked as it was seen by the school authorities as likely to arouse objections from the parents.

Austin

The only general restraints placed upon the research involved the question concerning religion in the Demographic Questionnaire. This decision involved a federal government regulation rather than a local schoolboard restriction.

Yugoslavia

Question 6 was not asked, as in Yugoslavia church is separated from state. It is a private topic and questions are not asked about it.

OCCUPATIONAL INTEREST INVENTORY

This was one of the instruments where the content of certain sections had to be locally determined. In some Cross-National studies a common occupational status scale was adopted, but usually with some unhappiness in one or more of the countries; for example, "policeman" does not have identical status in all countries. In the present study, countries were permitted to substitute occupations if the ones drawn up by the full group proved not to have the status assigned to them. The last section of the

Occupational Interest Inventory required five jobs from each of six status levels. No discussion of the changes is given here. Copies of each country's version can be obtained from Robert Peck at the R&D Center at The University of Texas at Austin.

Germany

There was some discussion as to the usefulness of the circles in the present form. It was suspected that the size of the circles as well as the verbal anchoring of the extremes (the most desirable and most important job anyone can have; the least important and least desirable job anyone can have), generally influences subjects to put the X in the bigger circles. Another point of critique was the unusual number of circles (8). It was suggested that seven or nine circles with the central circle being the smallest one, and the extreme circles being the largest ones would be more appropriate in order to get objective results on that subjective scale.

For Items 5 and 6, there were two new codes which were necessary because of the relatively big number of answers not codable, according to the scoring instructions.

Item 7 -- Indifference or tolerance: "he doesn't give a darn," "don't know," "can choose the job myself."

Item 8 -- "Social - more answers": "A better job than he has," "A clean job, not such dirty one as he has."

Japan

The use of circles also caused some trouble in Japan, where it was decided that the latter concept would be too unfamiliar for the children, while the more conventional horizontal line was a format thought to be familiar to most. The Japanese team also considered it necessary to provide concrete examples to make clear the difference between work and occupation, so that the children would respond to the appropriate concept.

SENTENCE COMPLETION

Basically this instrument should not have presented any problem. However, in some countries, particularly those whose grammatical structure was very different to that of English, the nuances of translation led to somewhat different meanings than had been intended. When this was detected in the pilot, changes were made. Difficulties mainly occurred, however, in two of the countries where full piloting had not been possible.

In Yugoslavia, stem 2: "When my mother and I are together, we......." was translated as "When my mother and I are together, then ...." Because of this, many answers express only the feelings of the subject or the change in his behavior. These responses had to be placed in category 96 as a speciality of the grammatical structure of the Slovenian language. The same difficulty was experienced with stems 13 and 22.

In Germany this instrument posed real problems. These have been set down by Professor Havighurst as follows:

"The problem of making equivalent forms of the Sentence Completion Test in German and English is complicated by the fact that the grammatical structure of the German language is much more inflected and rule-bound than English. The two principal problems are presented by the inverted word order of the German principal clause, when it is preceded by a subordinate clause, and by the fact that the German has two different forms for dative and accusative, while the English has only one form.

"In the first case, the English version has about ten stems of the form: 'When people ignore me, I ....' Here the emphasis is on the I, which forces the completion to be the responsibility of the writer. But in the German, the inverted word order requires a verb before the subject, and the stem cannot be translated with the word Ich without a preceding verb. Thus, the German translation of the stem above must be:

"'Wenn andere Leute mich nicht beachten, dann.....' (When other people do not notice me, then.......' This must be followed by a verb, and the respondent may respond with an action of himself (then I don't care.), or of other people (then they are unpleasant.) For these ten I-stems, one cannot say that the German and the English forms are truly equivalent.

"The other problem is that a stem like: 'My Mother ......me' can be translated with me in the dative or accusative. We give both alternatives: (a) 'Meine Mutter .... mich,' and (b) 'Meine Mutter ....mir.'

"Another way to meet this situation was to revise the stem: 'Most people .... other people.' Instead of giving two versions (dative and accusative), of other people, this stem was written: 'Anderen Leute gegen: ueber sind die Meisten Menschen.......,' 'Toward other people, most people are ....' This is clearly not a fully satisfactory version of the English stem."

The members of staff of the co-ordinating section in Austin, when reviewing the version agreed to at the Austin conference in the light of the Austin pilot results, decided that some twelve of the original stems should be modified. For some stations these motifications arrived too late to be used in the Stage I testing. In two of the stations, Chicago and England (for the fourteen-year-old sample only), the revised sentences were given separately at the second testing session or when the BRS was being done. In England, the correct version was given initially to all ten-year-old subjects. In Italy and Germany, the revised sentences were not used. However, as in nearly all cases the revision was merely a refinement of the original form, it was possible to score the responses received to the old stems.

VIEWS OF LIFE

Most of the items translated without difficulty. A few stems were dropped because they were not translatable and comprehensible in at least one country. Slight rephrasing took care of the other discrepancies.

Schedule of Testing Sessions

The basic plan of the study set down the order in which it was expected the instruments should be administered. Recommendations for the spacing of the testing sessions were made, but it was realized that each country might have to have different arrangements in order to meet the administrative convenience of the schools and school systems. Where possible, the Demographic Questionnaire and the Literacy Test (where used) were to be given some time in advance of the main testing. This procedure would have allowed the research team to ascertain approximate numbers in the schools who met the sampling requirements. Where convenient, the non-sample pupils were not to be tested. Only certain countries were able to test just children who fitted the sampling design. In the other countries, it was administratively necessary to test all the children in the classes being used. Approximately a week, at the minimum, was required to elapse between the administration of the projective techniques and the ability-aptitude measures. In some countries, four sessions were necessary; in others, two were sufficient.

A final condition was that the children in a class should have been together in that school year for at least one term, and preferably two or more. This was in order that the pupils would have had sufficient time to get to know each other well enough to give reasonably reliable answers to the Behavior Rating Scale. It also meant the teachers would have had enough experience of the class to complete the teachers' Behavior Rating Scale in full.

The only really significant departure in administration occurred in Germany. The member of the German team who was present at the original planning meeting in Austin took very little part in the subsequent work and a three-member team, geographically separated, became responsible for the field work. A decision was taken to randomize presentation of the instruments and not to administer ability and achievement on the same day. It is impossible to estimate what effect, if any, this variation in order of presentation had on the results.

Total Testing Time

For the most part, instruments were to be administered under untimed conditions. Nonetheless, it is of some interest to know the variations that were found in each country (Tables 1 and 2).

DATA COLLECTION

Collecting the data has had two aspects. The first was obtaining the cooperation of the schools and school systems; the second, actually working in the schools. In some countries it was necessary to obtain national permission before approaching regional or local authorities and individual schools. In others, a more direct approach was possible. The details are given below.

Brazil

Permission was obtained to use the school after a personal contact with the principal. A great number of schools had to be involved at first in order to find sufficient to yield the sample requirements.

England

In England, permission to work in state supported schools must be obtained from the Local Education Authority which usually covers a county or a large city, or in the case of London, the municipal borough. So that the full range of socioeconomic levels would be represented, to ensure that more than one authority should be represented and at the same time to keep travelling time reasonable, two authorities were approached.

The procedure required an interview with the Chief Education Officer or Director who in turn placed the request before the Education Committee of the Authority. In both cases, copies of the instruments were lodged with the Chief Officer. In one authority approval was given, subject to the question concerning parental education being deleted. In the other, the full battery was accepted. Once the permission of the authority had been obtained, it was then necessary to approach individual head teachers who had freedom to agree or refuse to participate. The choice of schools to approach was determined in consultation with the chief educational psychologist in each authority. Nearly all of those approached agreed to participate.

In the case of schools where parents paid fees, it was possible to approach the Head Teacher directly.

Germany

In Hannover and Hamburg the Ministries of Education had first to be asked. The next steps were to ask the Regional School Board and the principals of the schools.

In Koblenz it was also necessary to ask the School Board for permission to test in the elementary schools. With high and secondary schools there were no difficulties as contacts had been made at a former testing time.

Because it was necessary to test the ninth grade, some schools were unwilling to cooperate because they were busy with preparation for entrance examinations into upper secondary schools.

Though the principal or Head Teacher was willing to let his students be tested, in some cases homeroom teachers were reluctant to cooperate and refused to let their pupils participate.

Austin

The reactions of the public school system to the testing were, in general, favorable and cooperative. There was a scattering of individual teachers who were somewhat reluctant to cooperate, but testing was allowed to continue to completion in these few classrooms.

Yugoslavia

No central permission was required. Each Head Teacher was personally asked to cooperate. No difficulties were experienced.

LOCATING THE SAMPLE

Once permission to work in the schools was obtained, quite a degree of effort was necessary to locate the schools which would maximize sample-appropriate cases. The chapter on sampling has made clear the reasons for working with two distinct socioeconomic groups. In some countries, the socioeconomic composition of schools was reasonably homogenous, but it was heterogeneous. The suggestion that the Demographic Questionnaire be given in advance, and only children in the appropriate socioeconomic groups be used, was not feasible in many countries.

In these cases it was necessary to include all children in the school classes chosen for testing. The treatment of the results of the non-sample (exclude) groups differed from country to country. In England, for example, it was a prerequisite that all data be used in a local report even though the Cross-National Report would include as few as 30% of the total tested. In some countries, "exclude" data could simply be excluded.

Brazil

The selection of schools was made, keeping in mind the problem of social class. It was very difficult, because in Brazil frequently in the same school students belonged to different social classes. Furthermore, it was decided not to use confessional schools, which include a great number of upper middle class boys and girls. This made it difficult to select the upper middle sample.

England

The location of the sample was carried out with the assistance of the principal psychologist for each authority. These officers are in an excellent position to know all the schools in the authority. The general specifications of the sample were discussed with the psychologists, who suggested a number of schools likely to meet the requirements. The Head Teachers of the schools were then sent a letter and a one-page summary of the project aims and method. Interviews were then held with each Head Teacher.

The exception to this was in the case of fee-paying schools from whom the upper middle sample was mainly drawn. These schools were approached directly and all (two girls' schools and one boys' school) agreed to participate. Towards the end of the testing period, it was clear that there would be insufficient ten-year-old grils at the upper middle level, so another school was invited to participate and did so willingly.

Germany

The highest percentage of upper lower and lower lower children was found in the Volkschule (elementary school). There was about the same percentage of upper middle, lower middle and upper lower class in the Realschule (secondary school), while the Gymnasium (High School) had the highest percentage of upper and lower middle class school children. Because of this, it was difficult to get upper middle children from the elementary school and upper lower children from the high school.

Italy

For the first stage, twelve schools were used, seven for the eighth grade and five for the fifth grade.

From a general point of view it was decided to subdivide the schools into two different areas, according to sampling needs. It was proposed to find the upper middle class subjects in schools located in the center of Milan and upper lower class subjects in schools located in the peripheral areas of the city. This was done on the assumption that in some areas of Milan people are concentrated at a certain socioeconomic level.

Mexico

The steps in obtaining the sample in Mexico were as follows:

1. Location of the schools from the point of view of socioeconomic level.

a. It was decided which schools to approach from general information as to the location of all the schools in the Federal District.

b. An analysis of the school zones. Those schools were selected whose location in the city seemed to indicate they would contain the kind of subjects required, that is, those corresponding to levels of upper lower and upper middle.

c. Once the decision was m , the research team visited each center to make sure that the pupils really represented the required socioeconomic levels. In the upper middle level there were no big problems, because most of the population in the schools visited fulfilled the requirements.

In the upper lower level there were many difficulties because the school population of all the schools tried was very heterogeneous. This made it impossible to ever get a majority of pupils within the sample range. Thus, for the upper lower level there were eight primary and five high schools. For the upper middle level there were only three primary and two high schools. These last were all private schools. The schools of U.M. were all state schools with the exception of one that is supported by a particular industrial concern.

d. A small questionnaire was then administered. The purpose of this was to gain information about the general socioeconomic level of the pupils, their exact age, and their school grade. This was given in fifteen public primary schools and in ten public high schools and in eight private schools.

e. Many schools and classrooms were eliminated because of the low proportion of subjects with adequate characteristics for the sample. The Demographic Questionnaire was given to those remaining.

Japan

There were two principles in selecting the schools for the final testing. The first was to select schools so as to represent all the schools in Tokyo, in terms of social class and sociological structure. For this purpose, it was convenient to use reliable maps which indicate ecological structure of the Tokyo Metropolis prepared by the National Institute of Statistical Mathematics and Tokyo Metropolitan Institute of Educational Research. The second principle was to select schools chiefly from the upper middle class families, which are rather small in number, for the purpose of reducting the total number of schools.

These two principles contradicted each other. In order to resolve this conflict, upper middle schools were selected purposely from among the schools sampled by the first principle. Since more upper middle subjects were needed, one private elementary school and one private lower secondary school was added.

Chicago

One system was in a predominantly upper middle class suburb. The only junior high school in the system and the two primary schools where the principal's consent was obtained, were used. The other school system was in a racially integrated "steel" town. The knowledge of the research director and the census data were used to choose predominantly upper lower class schools (and one predominantly upper middle class primary school).

Austin

The primary criteria in selection of schools for the Austin sample was the homogeneity of the socioeconomic class structure of the particular school. In addition, with respect to the Austin sample, schools were also chosen which contained a large proportion of one or both of the minority group sub-samples tested.

Yugoslavia

All the subjects came from schools located in the city of Ljubljana. Pupils in all the schools were mixed -- boys and girls -- and there was no differentiation by social status.

ATTRITION

Number of schools used and number of children tested

Although provision had been made for the reduction of within-school samples on the basis of the literacy test and the demographic information, there were countries where it was not possible to administer the Demographic Questionnaire in advance, or where the schools were unable to make alternate arrangements for the non-sample pupils. This meant that in most countries the number of children tested was two or three times the number required to meet the sampling design.

FEEDBACK TO SCHOOLS

As a policy for the research, it was decided that the practice common in some countries should be adopted for all cases, namely, that some type of information be returned to the schools as a recognition that the help given by the schools was appreciated, but also, so that the information could be of value to teachers.

The format of the "feedback" was to be determined by each country. The range of practices was from returning ability and achievement scores, when asked to do so, to a prepared report on some of the instruments for each school, such reports being collected in a volume and presented to the director of research for the school's system (Chicago area). For one of the Chicago area systems, it was the first time any research worker had provided feedback to the system.

In between these two extremes were lists of ability and achievement scores sent to each school, results on the tests, plus a socioeconomic index. In Germany, where three localities were involved, the procedures were different, but included, as well as results, books on educational psychology to school principals, lectures to staff and school board members, for example, on problems of educational psychology, and "School tests -- latest fashion or educational necessity?" In England, a brief report on progress was sent to each school prior to the beginning of Stage II and Stage III work. In some schools, a considerable amount of informal discussion was carried out with the staff.

Stage II

Introduction

While Stage I of the project had been concerned with testing ten- and fourteen-year-old children, Stage II was concerned with interviewing a selected sample of the parents of the children tested.

The interview was planned with more than one purpose in mind. In the first place, it was hoped that it would provide validating information for some of the Stage I data collected from the children, particularly on the projective instruments -- the Story Completion, the Sentence Completion, and the Social Attitudes Inventory. There were also some questions that related to the information given by the child on the Demographic Questionnaire and the Occupational Interest Inventory. These specific comparisons of Stage I and Stage II data were dealt with in Volume IV (Peck, et al., 1974, Family Antecedents of Coping Behavior in Eight Countries).

The interview was also designed to serve a broader purpose of collecting information regarding parents' own attitudes and values and parent/child interaction as seen from the parents' point of view.

In this way the Stage II results could be related to the Stage I results in an explanatory fashion. These results also could permit a cross-cultural study of parents, alone.

The interview, then, was primarily concerned with coping behavior and the factors that influence it. Thus, most of the questions arose from a conceptual system developed during Stage I of the study. The work of a number of previous investigators was drawn on. The studies of Dave and Wolf on home environment were considered, with particular regard to Academic Task Achievement. The work of Maccoby and Levin and the Berkeley growth stu[illegible] was also considered. With regard to format and question construction, the source most heavily used for initial ideas was the work of Sellitz, Jahoda, Deutsch and Cook. In addition, earlier studies by Hereford, Havighurst, and Peck were drawn upon.

Specific Questions

Because of their validational nature, a number of questions were phrased in a manner very similar to that used in the children's instruments. To take the projective instruments first, twelve of the Sentence Completion stems were paired with questions in the interview. The relationship with the Story Completion instrument was not so extensive but there were certain questions that could be related to certain stories.

The first fourteen questions in the interview related to demographic information and covered the same areas as the child's demographic questionnaire. The occupational interest questions included not only the parents' reports of the child's aspirations and expectations but also the parents' aspirations and expectations for the child.

These validating questions did not follow each other in strict sequence. Rather the interview was planned so that questions relating to specific areas would be dealt with together, making it easier for both parent and interviewer. Thus, the interview was divided into two main parts. Questions 1 - 88 dealt with information related either to the child or to parent/child interaction; questions 89-110 dealt with parent relevant information.

The child-centered questions were structured in the following way:

Question	Type of Information
1 - 22	Demographic
23 - 38	School oriented questions including Academic Task Achievement as well as Parents' Attitude to School
39 - 44	Child Activities including Parent/Child Interaction
45 - 55	Nonacademic Task Achievement
56 - 62	Child's reaction to Authority
63 - 68	Nonacademic Task Achievement outside home
69 - 72	Occupational Interests
73 - 76	Interpersonal Relations
77 - 81 and 88	Anxiety
82 - 87	Aggression

In the parent-centered section of the interview the questions were arranged as follows:

90 - 94	Further Education
95 - 103	Occupational Information
104 - 107	Reaction to Criticism
108 - 109	Aggression

Apart from validating aspects, it was hoped that three main types of information would be obtained. The first was coping style information, which was covered from several points of view. One was concerned with the child's actual coping style as seen by the parents, in the areas already being investigated, i.e., Task Achievement, Anxiety, Aggression, Authority, and Interpersonal Relations. Information was also obtained from the parents about their own coping styles in a variety of situations under the same area headings.

The second kind was occupational information. This was information relevant not only to occupational interests but also to occupational values. In the latter case the parents were asked to rank the fifteen occupational values to permit a direct statistical comparison with the children's data. In addition, for working parents, information was obtained about their own occupational history, attitudes and values toward their jobs and their coping behavior while working.

Third was achievement information. Questions involving Task Achievement by the child were divided into the two major areas of Academic and Nonacademic Achievement. Nonacademic Achievement related to jobs or chores in the home and for fourteen-year-old children to paid jobs outside the home. Questions concerning Academic Achievement centered primarily around homework, as this was the area of education with which parents were most familiar. Questions in these areas included not only the child's performance in the homework area but the parents' participation and support both for homework and generalized educational endeavors. In addition, the parents were asked for their evaluation of the child's performance in school.

Construction of the Interview

At the London Conference in 1966 the major responsibility for the development of the Parent Interview was assigned to Austin and London and the bulk of the construction and pilot testing took place at these two stations. The initial form of the instrument caused concern in a number of stations because of its length. It was thought that the parents would find it too tedious and that rapport would be lost. Revisions of this form were therefore carried out by both stations and agreement reached on a second version. This version was sent to all stations for translation and pilot testing. On the basis of results from all stations a shortened form of the interview was constructed and once more distributed to all stations for translation and pilot testing. This form went through two additional revisions in Austin and London before the final form was agreed on at a meeting in New York in January, 1967. This final form was sent to all countries for translation and the translated version returned to Austin and London, after back-translation and checking in each country.

Selection of Parents

It was agreed at the 1966 London Conference to interview eighty mothers (ten per cell) and at least forty fathers (five per cell). In terms of priority, the mothers came first. To select the sample, the subjects in each cell were divided at the median of the achievement scores.

The sample was then randomly selected, half from either side of the median. Any refusals necessitated random replacement from the appropriate half cell. In actual fact, the number of refusals varied across stations. In London, for example, only two mothers had to be replaced, while Mexico City had 11.25% refusals and the percentage in Chicago was even higher.

Training of Interviewers

This varied from country to country, but as much time as possible was devoted to this procedure. Wherever possible, observations of practice interviews by the entire interviewing team in one-way observation rooms were carried out. Group review of practice interviews was another method used. Every interviewer carried out at least two practice interviews that were gone over with him in detail, before actual interviewing of the sample commenced.

The interviewers were either project staff members or interviewers hired specifically for this purpose and given a period of training and practice with this particular interview.

The interview usually lasted from one to two hours and usually took place in the parents' home. However in some stations, Milan for example, the interview took place in the University Department. Mothers and fathers were interviewed separately.

Method of Coding

The verbatim responses to the questions were coded using a system of content categories. These coding categories were developed from a sample of at least twenty-four interviews from each station. The translated responses from each station for each question were typed on small cards that were placed in empirical content categories by independent judges. The consensus of these judgments formed the content coding categories for each question. At this point a deliberate attempt was made to use as many and as fine categories as possible in order to preserve the richness of verbal response. It was felt that categories could be eliminated or collapsed later whereas it would be impossible to discriminate new categories at a later date.

Not all the coding categories were, however, empirically derived at this stage. Some of the categories from the Demographic Questionnaire were used intact and some modifications of the Sentence Completion coding categories were used to give direct comparability with the children's data.

A preliminary coding manual was developed by the Austin and London stations and sent to all stations, who then sent back their suggestions and modifications. The initial manual was revised in the light of these criticisms and the final manual was then translated by each station.

A complex system of coder training and calibration was devised to ensure comparable coding across all stations. The first step was to achieve comparability between Austin and London on a group of twelve interviews from each station. These twenty-four interviews were coded independently by at least two coders in each station, who then reached agreement within stations. The consensus results were then compared and differences discussed by letter and by telephone. When Austin and London were calibrated, i.e., interpreting the manual in exactly the same way, each of the other stations was asked to code twelve of their own interviews, using two or more coders, who then reached consensus and sent the results to Austin and London. These interviews were independently coded in both Austin and London and the results compared with the original station's coding. Differences were discussed and agreement reached. In addition there were some face-to-face meetings among subgroups of stations to discuss and improve coder reliability.

When the period of calibration was finished, the production coding of the entire sample of interviews was undertaken in each station. In the production coding, each interview in each station was coded by at least two independent coders and the final code given was the consensus of these two individuals. The coders in each station were the same individuals who had gone through the calibration process with the Austin and London stations.

This elaborate and time-consuming process was designed to provide the maximum comparability and reliability of interview data from all stations. Although laborious, the use of independent coders and the calibration of these coders across stations proved successful. This method had the additional advantage of greatly reducing the possibility of clerical errors.

Table 1

Time Taken for Instrument Administration in Cross-National Project

(in minutes)

10 Year Olds

	01 Brazil	02 England	03 Germany	04 Italy	05 Japan	06 Mexico	07 Chicago	08 Austin	09 Yugoslavia*
Demographic	50	30	15	35	30	25	25		
Occupational Interest Inventory	20	25	15	30-40	45	20	25		
Occupational Values	60	25	25	30-40	30	20	20		
Sentence Completion	25	35	30	35-45	50	35	30		
Story Completion	50	40-70	70-75	50-70	55	50	50		
Social Attitudes Inventory	20	25		35-45	30	15	20		
Behavior Rating Scale	45	30	20	30-35	35	35	25		
Aptitude	40	30	45	30	30	25	30		
Achievement	75	90	93	75	90	90			

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*Standard time for Achievement Tests
Others not timed

Table 2

Time Taken for Instrument Administration in Cross-National Project

(in minutes)

14 Year Olds

	01 Brazil	02 England	03 Germany	04 Italy	05 Japan	06 Mexico	07 Chicago	08 Austin	09 Yugoslavia*
Demographic	30	25	15	25	20	25	25		
Occupational Interest Inventory	10	20	15	20-25	40	20	25		
Occupational Values	30	25	25	20-30	20	20	20		
Sentence Completion	20	30	30	20-30	40	35	30		
Story Completion	50	50-70	70-75	40-50	50	50	50		
Social Attitudes Inventory	15	20		25-35	20	15	20		
Behavior Rating Scale	30	25	20	20-25	30	35	25		
Aptitude	40	30	45	30	30	25	30		
Achievement	90	95	90	45	90	75			

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* Standard time for Achievement Tests
Others not timed

PLAN FOR ANALYSIS OF DATA

The plan for analysis of the data can best be described sequentially according to the stage of the project.

Stage I

Two kinds of analyses were performed. The first was an analysis of variance of the mean scores of all sub-samples in the total research population, on the more than 100 variables measured by the assessment battery. This made it possible to describe the pattern of aspirations, attitudes and behavior of the children in each national sample, and in each of the eight sub-groups within that sample. A second analysis of variance was then performed, comparing all of the national samples with one another. This made it possible to identify a number of trans-cultural "universals" which appeared to operate everywhere; and it also identified a large number of ways in which children systematically differed according to their age, their sex, their socioeconomic status or their national culture.

The second form of analysis was correlational. Characteristics of aptitude, aspirations, career values, attitudes and coping behavior were correlated with several independent measures of performance in academic work and in dealing with the other four kinds of life problems. An analysis of variance, in all countries, was also performed in order to make it possible to determine cultural similarities and differences in the attitudes, values, and coping styles which were significantly related to performance in each country.

Stage I results are reported in Volume II of the technical report stemming from this project (Peck, _et al_., 1972a).

Stage II

While Stage I of the project had been concerned with testing ten- and fourteen-year-old children, Stage II was concerned with interviewing a selected sample of the parents of the children tested.

The interview was planned with more than one purpose in mind. In the first place, it was hoped that it would provide validating information for some of the Stage I data collected from the children, particularly on the projective instruments -- the Story Completion, the Sentence Completion, and the Social Attitudes Inventory. There were also some questions that related to the information given by the child on the Demographic Questionnaire and the Occupational Interest Inventory.

The interview was also designed to serve a broader purpose of collecting information regarding parents' own attitudes and values and parent/child interaction as seen from the parents' point of view.

In this way the Stage II results could be related to the Stage I results in an explanatory fashion. These results also could permit a cross-cultural study of parents, alone.

Thus, Stage II analyses consisted of a series of correlational analyses examining the following:

1) Validity of mothers' reports of children's academic performance
2) Validity of mothers' reports of children's coping effectiveness
3) Comparability of mothers' report and children's report of children's coping style
4) Mothers' reports of child rearing practices in relation to children's behavior
5) Mothers' coping styles in relation to children's coping behavior
6) Mothers' aspirations compared with children's aspirations and achievement
7) Comparison of fathers' and mothers' self and child descriptions
8) Comparison of fathers' interview data with children's characteristics

Results of the Stage II analyses are reported in Volume IV of the technical report (Peck, et al., 1974).

Stage III

The analyses described above in Stage I were also performed in Stage III. In addition, however, the Stage III results were compared with the Stage I data, thus describing those characteristics which were found to be stable across time, in the two different samples. This consisted of a check to see whether significant differences in the Analyses of Variance were similar in both stages.

Stage III results are reported in Volume V of the technical report (Peck et al., 1973).

REANALYSIS

In 1974, a reanalysis of the cross-national data was begun. The basic purpose was to reduce the complex number of variables to a meaningful set of factors which could then be used for analyses as described below.

Four major types of analyses were performed on the Stage I and Stage III Cross-National data. A factor analysis was done on each of the instruments within each age and country sample. Then a factor-comparison analysis was done, in order to assess the similarity of the factors across ages and countries. Next an analysis of variance was performed to assess sex and SES differences on the factors within each sample. Finally, a regression analysis was done, utilizing the factor analysis results, to assess the power of the coping, motivation and aptitude measures to predict and explain academic performance, within each age group in each national sample.

Factor Analysis

A factor analysis was performed separately on each of four instruments: Occupational Values, Social Attitudes Inventory, Sentence Completion, and Views of Life. All of the data were analyzed separately by country and by age group, since a pilot analysis indicated different factor structures existed in the different countries, and in the different age groups.

As an example of the decision procedures in the factor analyses, the complete analysis of the Occupational Values instrument will be shown for one sample. All of the data from the Occupational Values Inventory were factor analyzed using the principal components method (unities in the diagonals). This method was chosen because of the format of the occupational values instrument. The instrument is ipsative; this precludes inverting the matrix, as the matrix will be singular. The principle components method does not invert the matrix. For example, the data for the fourteen year old English samplewere factor analyzed resulting in a factor matrix (see Table 1). This first matrix has only been analyzed by the principle component method and has not yet been rotated. The eigenvalues of this matrix are calculated and examined. In Table 2 it is apparent that the first six factors all have eigenvalues greater than 1 and that the percent of variance accounted for by these six factors is 64.2%, therefore, the decision was made to accept the six-factor solution for the Occupational Values test in this sample. These factors were then rotated by the quartimax method which maximizes the loadings of a particular variable on a single factor. This method of rotation resulted in the most consistent and interpretable factor analytic solution. See Table 3 for the rotated solution.

All the other data for the Occupational Values instrument were analyzed in a similar manner. A six-factor solution was derived in all samples since this number of factors included most of the explained variance (60-70%) and none of the factors had an eigenvalue below 1. Thus, each sample had a six-factor solution, however, the content of the factors varied somewhat from sample to sample. The data for the three other instruments were handled in a similar manner.

The data in Stage I and Stage III were treated in identical manner except in the case of the Social Attitudes Inventory. In Stage I the Social Attitudes Inventory was factor analyzed using the principle components method (unities in the diagonal). Two factors emerged from this analysis which had eigenvalues greater than one and accounted for a substantial amount of the variance. These two factors were rotated using the quartimax method within each age and country sample.

In Stage III, the data from the Social Attitudes Inventory were factor analyzed using the principal factors method of analysis (with communalities in the diagonal) and the quartimax method of rotation. However, since only one factor emerged for all but one sample (and that differed little from the single-factor solution), a single factor was derived, common to all samples.

The Sentence Completion data in both stages were analyzed using the principal components method (unities in the diagonal). This method was employed because several items tended to be highly intercorrelated, which precludes inverting the correlation matrix, as the matrix will be singular. Initial factor analyses revealed approximately 15 factors with eigenvalues greater than 1.0, in each sample. Many of the later factors, however, were single item factors which added little new information to that already found in the correlation matrices. In view of this, only ten factors were extracted from each sample. The content of the factors differed from sample to sample. These factors were then rotated by the quartimax method, within each age and country sample.

The data from the Views of Life instrument (this instrument was not used in Stage I) were analyzed by the principal factors method (with communalities in the diagonal) and the quartimax rotation method was used. Data were available only for the 14-year-old sample. An initial analysis revealed that eight factors was the most commonly derived number (having an eigenvalue of greater than 1.0); and included almost all of the explained variance (Approx. 60-70%). Therefore, an eight-factor solution was accepted for each sample, but these varied in content from sample to sample.

Based on the factor structures obtained by these analyses, composite scores were derived in the following manner: A Unit Weighted score (UW) consisted of the sum of the standard scores of the items which loaded on a factor at .40 or better. These variables are indicated on the rotated factor matrix (Table 3) by an asterisk. Thus, a unit weighted score was computed for each factor, on each of the instruments, for each country and age group. (Factor weighted scores were also calculated, but proved to correlate with the unweighted scores in the .97-.99 range, so the simpler, unweighted approach was used.)

Factor Comparison Analysis

The next step in the analysis was to compare the factor structures across all of the countries, in order to determine whether there was a set of factors common to all countries. The factor comparison procedure (RELATE) which was developed by Veldman (1967) and Kaiser, et al. (1971) was used for this analysis. This program compares the two factor structures by rotating one factor matrix toward the other, in an attempt to match the factor axes. The results provide two types of information about factor invariance. First, the results indicate the cosines between the factor axes of the first matrix and the axes of the second matrix. These values range from 0 to 1. As the values approach 1, the factor axes are considered to be increasingly similar. The second type of information provided by the program is the cosine between the items in each of the factor matrices after rotation. This indicates how similarly the items are located in the two factor spaces. These also range from 0 to 1.

The factor matrices for each instrument (Sentence Completion, Occupational Values, and Views of Life) were compared across Stages I and III, across age groups and across all countries. An example of a comparison of two factor matrices is found in Table 4. The numbers in this table are the cosines between the factor axes in the two original matrices. These numbers can be interpreted in a manner similar to correlation coefficients. Similar factors were selected on the basis of their having a cosine of .80 or greater. These factors are designated with an asterisk. These analyses allowed the similar factors between various samples to be selected. For example, the results of the comparison of all countries in Stage III for the Occupational Values instrument are presented in Table 5. This table indicates the number of factors that two countries have in common. The maximum number of similar factors is six. Note that some countries have all their factors in common (e.g., Austin and Chicago) and some have few factors in common (e.g., Austin and Japan).

In order to examine the similarity more closely, the items of each of the similar countries were examined to see if the factors really were identical. Table 6 illustrates the comparisons between Austin and Chicago. For example, Factor 1 in both sites was found to be similar. Examining the factor loadings, one finds that four of the items loaded highly on that "common" factor in both Austin and Chicago: Altruism, Success, Prestige and Economic Returns. However, there were two items that loaded highly in Austin, but not in Chicago: Self-Satisfaction and Surroundings. The loading in Chicago for Self-Satisfaction is in the same direction and approached significance, but the loading in Chicago for Surroundings does not even begin to approach significance.

As a further example, note column IV in Table 6 (Austin 5; Chicago 4) in which factor 5 of Austin appeared to be similar to factor 4 in Chicago. In fact, only one item, Independence, loads highly in both factors. There is one other item in Austin: Management, and two in Chicago: Success and Self-Satisfaction, that do not load on that factor in the other sample. In view of these findings, the seeming similarity between the factor structures in the two samples is more apparent than real. Despite the apparent similarity of the factor axes, the factor contents actually turn out to be somewhat different upon detailed examination.

The results of the factor comparison analyses necessitates that several different types of factors must be noted. There are those factors that are identical, that is, all of the variables that load on one factor also load on the other factor. Next, there are similar factors, those whose factor axes yield a cosine of .80 or better (as in Table 4). Finally, their are country-unique factors, that is, factors that are unique to a particular country.

The types of analyses and tables presented in this section were also used to examine similarities between Stage I and Stage III data as well as comparison between age groups. In general, all of these factor comparison analyses provide information about the similarities among the factor structures within various samples.

Analyses of Variance

One way analyses of variance were performed on the unit weighted scores derived from the factor analysis. These analyses were performed on both the Stage I and Stage III data.

The first analysis was performed to test for possible differences in the unit weighted scores on the basis of sex. That is, the unit weighted scores of males and females were compared. Table 7 illustrates the results of this type of analysis for the Austin 14 year old sample. Only the significant differences are indicated.

A similar type of analysis was performed comparing from middle class and low class backgrounds to see if there were differences in their unit weighted scores. An example of these analyses is illustrated in Table 8. The results of both of these types of analyses indicate that there are some definite Sex and SES differences within the various age and national samples. These comparisons will yield a clear picture of the patterns of coping in each of these samples.

Regression Analyses

Multiple regression analyses were performed using the SPSS regression program. The unit-weighted scores were treated as independent (predictor) variables, along with the aptitude scores (RAVEN), the student's educational and occupational aspiration scores, and the Peer Behavior Rating Scale scores (BRS). Three criterion variables were utilized: Math achievement, Reading achievement, and GPA. The regression analyses were performed separately for each age group, within each country.

Step 1: The first analyses used the unit-weighted factor scores from the following instruments as predictor variables: Sentence Completion, Views of Life, Social Attitude Inventory, and Occupational Values. The children's educational and occupational aspiration scores were also entered as predictors. The criterion variables were Reading achievement, Math achievement, and Grade Point Average. The variables were categorized into these three groups: 1) coping measures (SENCO, VOL, SAI); 2) Occupational Values (OVAL); 3) Child's Aspirations (Ed. and Occ. Aspir.). The regression analyses treated all the variables in the first category as a set of predictors, prior to testing the contribution of variables from the second category. Likewise, the predictive power of all the variables from both the first and second categories was tested before the third-category variables were allowed to enter the equation. Thus, the variables from the first category were partialled out before the second category was entered, and both categories were partialled before the third category was considered.

The order of the categories followed this rationale: coping skills (first category) are the characteristics of primary interest in this study, so their full contribution to achievement needs to be identified. Further more, if they are considered as deeply persistent tendencies, the product of life-long prior learning, they may be viewed as antecedents of occupational interests and aspirations. Similarly, specific kinds of work-related interests and motives might rationally be considered to precede, and to modify, the choice of a preferred career-status level. In any event, wherever there might be a correlation of career values with aspiration levels, it is of greatest interest to see what particular career values are contributing to achievement, before taking account of the much more global index: aspiration level. In the end, while it is recognized that there are intercorrelations among the predictors, this order of analysis is likely to cast maximum light on the relationship of, first, coping skills and then, career values, on achievement. The order in which the variables were entered within each category was dependent on the partial correlation for each variable; that is, the variable with the highest partial correlation was entered into the equation first, followed by the next highest, etc., until all the variables for that category were entered.

Several successive analyses of this type were done, maintaining the category structure and eliminating from the equation those variables that were not significant at the probability level of .05. An example of this procedure is as follows:

Consider that there is one criterion (Y) and 8 variables, in three categories. Thus:

$$Y = \begin{bmatrix} \text{variable 1} \\ \text{variable 2} \\ \text{variable 3} \\ \\ \text{Category 1} \end{bmatrix} + \begin{bmatrix} \text{variable 4} \\ \text{variable 5} \\ \text{variable 6} \\ \\ \text{Category 2} \end{bmatrix} + \underset{\text{Category 3}}{\begin{bmatrix} \text{variable 7} \\ \text{variable 8} \end{bmatrix}}$$

Initially, the variables for the first category are considered. Their order of entry is based on the simple or partial correlation of the variable. If there were, for example, three variables in category 1 with the following simple (whole) correaltion coefficients,

variable 1 = .15
variable 2 = .25
variable 3 = .11

then the first variable to enter the equation would be variable 2, which has highest simple correlation. Partial correlations would be computed for variables 1 & 3 with variable 2 partialled out. (These partial correlations might be different from the simple correlation, due to intercorrelations among the variables). For example, the partial correlations for the variables might be:

variable 1 = .10
variable 3 = .11

Variable 3 would be the next variable to enter the equation since its partial correlation is the highest. [Note that for variable 1, the partial correlation was less than the simple correlation. This suggests that variables 2 and 1 have some shared variance.] The last variable to enter into the equeation would be variable 1. The resulting equation from this part of the analysis would be:

Y = [variable 2 + variable 3 + variable 1]

The second catetory of variables is now considered along with all the variables from category 1 in the equation. The variables in category 2 are selected on the basis of their partial correlations, just as were the variables in category 1. For example, if the partial correlations are:

variable 4 = .25
variable 5 = .30
variable 6 = .05

then, variable 5 would be the first to enter the equation, partial correlations would be recomputed, and the remaining variable with the highest partial correlation is entered, etc., until all variables in this category are in the equation. The resulting equation might look as follows:

Y = [variable 2 + variable 3 + variable 1] + [variable 5 +
variable 4 + variable 6]

Now the final, third category of variables is considered with all the previous variables in the equation. The third-category variables are considered in the order of their partial correlation coefficients in the same manner as the previous two categories.

The final equation from this type of analysis might look as follows:

Y = [variable 2 + variable 3 + variable 1] + [variable 5 +
variable 6 + variable 4] + [variable 7 + variable 8]

The regression program computes an F test for each partial correlation, in order to assess the relative contribution each variable makes to the prediction of the criterion. For example, based on the F tests, the probability that each variable is contributing significantly might look as follows:

		P
catetory 1	Variable 2	.005*
	Variable 3	.070
	Variable 1	.090
category 2	Variable 5	.05*
	Variable 6	.09
	Variable 4	.13
category 3	Variable 7	.01*
	Variable 8	.15

[Note that only three variables, 2, 5, and 7, show significant predictive power, at or beyond the .05 level of probability.]

The regression analysis is then recomputed, using only the significant variables from category 1, and all of the variables in category 2 & 3. Thus, the following equation will be considered:

$$Y = [\text{variable } 2] + \left[\begin{array}{l}\text{variable } 4\\ \text{variable } 5\\ \text{variable } 6\end{array}\right] + \left[\begin{array}{l}\text{variable } 7\\ \text{variable } 8\end{array}\right]$$

All of the variables are considered from categories 2 and 3 because, by taking out the non-significant variables from category 1, there may be some additional variables in categories 2 and 3 whose partial correlations may increase. In this second analysis, each category is considered separately and the variables within each category are selected on the basis of their new partial correlations. Following this analysis, the significant variables from category 2 are selected. For example, the probabilities for these variables might be:

		P
category 1	variable 2	.005*
category 2	variable 5	.05*
	variable 6	.05*
	variable 4	.13
category 3	variable 7	.01*
	variable 8	.15

Thus, two variables in category 2 are significant at the .05 level of significance.

This analysis is then redone, using only the significant variables in categories 1 and 2, and all the variables in category 3. The equation for consideration is as follows:

$$Y = [\text{variable } 2] + [\text{variable } 5 + \text{variable } 6] + [\text{variable } 7 + \text{variable } 8]$$

This anslysis is done in a manner similar to the previous ones, retaining the category structure, and ordering the variables within category 3 on the basis of their new partial correlations. The probability levels for this analysis might turn out to be:

		P
category 1	[variable 2	.005*
category 2	[variable 5	.05*
	[variable 6	.05*
category 3	[variable 7	.01*
	[variable 8	.15

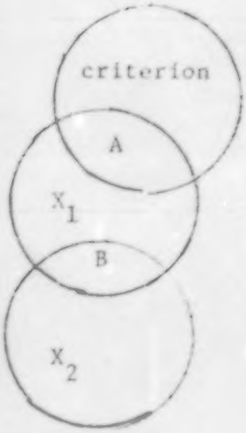
(*These variables are significant at least at the probability level of .05.)

From this analysis, the resulting final equation would be:

$$Y = [\text{variable } 2] + [\text{variable } 5 + \text{variable } 6] + [\text{variable } 7]$$

In this final equation, only the significant predictor variables from each category were retained.

Suppression. There is one slightly complicating problem to these analyses. In most cases the procedure described above will result in a regression equation, however, there is a possibility of suppression effects in the data (Cohen & Cohen, 1975). A suppression effect occurs when two of the predictor variables share some portion of the variance which results in the combination of the two variables being significant when either one alone would not be significant. There are several types of suppression, but the most common case (called "classical") is depicted in Figure 1.



X_1, and X_2 = predictor variables

Figure 1. Classical Suppression

The variable X_1 may be only moderately related to the criterion (area labeled "A"), but when the common variance (area labeled "B") is subtracted from X_2 there is a proportional increase in the amount of variance shared between X_1 and the criterion. Thus, a variable (e.g., X_1) that would not be predictive by itself may be significant with the inclusion of X_2 in the equation. Also, X_2 will not be a predictor itself of the criterion and, therefore, will not itself be significant. Nonetheless, the combination of these variables will result in X_1 being significant. The occurrence of cases of suppression necessitate careful interpretation. In the next section a particular case of suppression will be discussed (Table 10a).

Summary. Through this type of regression analyses, the best predictors from each category (Coping, Occupational Values, and Child's Aspirations) were selected. These analyses represent the most efficient predictive equation for each achievement criterion.

Step 2: The next step in the analysis was to use the significant variables from the previous analysis (Step 1), along with an aptitude measure (RAVEN), to predict the criterion.

The major purpose of this analysis was to examine the unique and total variance contributed by the non-cognitive variables (Coping, Occupational Values, Child's Aspirations), selected from the previous analysis, and the variance contributed by the cognitive Aptitude measure. First, a regression analysis was done in which the Aptitude measure was entered into the equation prior to the non-cognitive measures. Thus, the variables were considered in the following order:

1. Aptitude (RAVEN)
2. Coping
3. Occupational Values
4. Child's Aspiration

In this analysis, the Aptitude measure was partialled out before the contribution of the non-cognitive variables was tested. From this analysis, the unique contribution of the non-cognitive variables was ascertained by examining the change in the square of the multiple correlation coefficient (R^2). As an example consider Table 9 in which Reading Achievement is the criterion; Table 9 shows the results of the regression analysis. This table summarizes the regression analysis for part of Step 2. This list of predictor variables is listed with Raven just followed by the coping and motivation variables. An F-test is computed for each variable. This is indicated in the table as well as the probability of this F-value. Note that the F-value for Raven is 54.54 and the probability level is .001. Next, the multiple R is given. Notice that this increased as each variable was entered into the equation. The multiple R for all of the variables is .62. The R^2 and R^2 Change are also indicated in this table. The R^2 corresponds to the percent of variance that can be attributed to a variable or set of variables. The total R^2 for this equation is .38; this indicates that 37% of the variance of Reading Achievement is accounted for by these variables. By looking at the R^2 Change column the percent of variance can be found for each variable, for example, the percent of variance attributed to Raven is 23%.

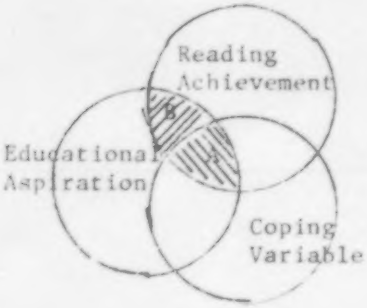
From this table the unique variance accounted for by the coping and motivation variables can be computed. The total variance, as was mentioned, is 38%. The percent of variance accounted for by the Raven was 23%. By subtracting the variance attributable to the Aptitude measure (Raven) from the total amount of variance, the unique contribution of the non-cognitive variables may be found. Thus, 38%-23% yields 15%. The unique variance of Reading Achievement accounted for by the non-cognitive variables is equal to 15%, when Aptitude has been partialled.

A similar analysis was done in which the variables were entered in the following order: (1) Coping, (2) Occupational Values, (3) Aspiration and (4) Aptitude. Note that the difference in this analysis is that the Aptitude measure, Raven, is entered last. Table 10 contains the results of this analysis. Most of the information in this table is similar to that in Table 9. One particular aspect to notice is the suppression effect between OVAL 12 and OVAL 13. (See previous discussion of "Suppression Effects.") The variable OVAL 12 appears not to be particularly related to the criterion Reading Achievement, but it is correlated -.33 with OVAL 13 creating a suppression effect with OVAL 13. Thus, OVAL 13 which itself was not substantially correlated with Reading Achievement is now correlated significantly with the interplay between both variables OVAL 12 and OVAL 13. The interpretation of these variables must consider the contribution of OVAL 13 to Reading Achievement considering the variance partialled from this variable by OVAL 12. From a consideration of the descriptions and the negative relationship between OVAL 12 and OVAL 13, children who value independence do well and appear to be good readers. Also, from this analysis, the unique variance attributable to the Aptitude measure could be computed in a manner similar to the previous analysis (in which the non-cognitive variables were entered following Aptitude, in order to ascertain their unique contribution). For example, consider Table 10, with Reading Achievement as the criterion, the total explained variance was 38%, and the variance accounted for by the non-cognitive variables was 23%. Thus, the unique variance explained by the Aptitude measure, with the non-cognitive measures partialled, is equal to 38%-23%. Fifteen percent of the variance in Reading Achievement was explained uniquely by the Raven score, in this sample.

It is apparent that the sum of the unique variance of each variable is not equal to the total variance ($R^2_{y.ab} \neq R^2_{y.a} + R^2_{y.b}$ and $38\% \neq 15\% + 15\%$). In the present set of data, this remaining portion of the variance appears to be common or shared variance between both predictor sets of variables, and the correlations with the criterion is positive. Cohen & Cohen (1975) have stated that this overlapping area (frequently referred to as commonality, cf., Lohnes & Cooley [1978]) should never be interpreted as a proportion of variance because, in an instance of suppression, this area could have a negative value (see p. 135, also, pp. 84-91). However, Lohnes and Cooley have argued that the joint variance (or commonality) among variables is the result of comparisons between models rather than the partitioning of variance for a single model and therefore, does not lead to the nonsensical negative value. Also, they assert that information about the joint contributions may be helpful in explaining the criterion variance. It seems at this time that it is best to report both of the unique variances and the total "explained" variance, noting that the unique components do not account for all of the criterion variance which the independent variables predict (see Table 11).

This type of analysis yields an estimation of the unique variance in school achievement that can be explained by both the cognitive (Aptitude) and non-cognitive variables.

Step 3. The analysis of these data is for explanatory as well as predictive purposes. Because of the regression technique used to select the best predictive equation (Step 1), some variables that might serve explanatory purposes could be excluded from the equation because of their intercorrelation with variables already in the equation. For example, Educational Aspiration may have a simple correlation coefficient of .30 with Reading Achievement, indicating that it is substantially correlated with the child's reading achievement. However, educational aspiration may also be correlated with a particular coping variable (see Figure 2). In the regression analysis, the variables are selected on the basis of their additional predictive power (that is, by their partial correlation coefficients). In this example, when the coping variable enters the equation, it partials out some of the variance in Reading Achievement which is accounted for by the child's educational aspiration (Part A in Figure 1). Thus, the partial correlation coefficient for educational aspiration may be diminished; that is, the remaining part of the predictive variance (Part B) contributed by the Educational Aspiration variable may not be large enough to be significant.



	r
Reading Achvm't & Ed. Asp.	.30
Reading Achvm't & Coping Variable	.42
Ed. Aspiration & Coping Variable	.63

Figure 2

Recognizing this possibility, some additional analyses were done to identify variables that might be useful in order to provide the best theoretical understanding of the relationship between coping and success in school, even though they might have been dropped out in Steps 1 or 2. In Step 3. such variables are reconsidered to see if they could be theoretically useful. Variables were selected for reconsideration which met one of two criteria: 1) either their simple correlation with the criterion variable had a probability greater than the .05 level, or 2) their partial correlation was significant at the .05 level, prior to reduction due to correlation with another variable (as in the case described above). Table 12 is an example of this type of analysis. examining Reading Achievement in one sample.

Three variables were found to add explanatory power, through this type of analysis. OVAL 11 and C(SC)1 each had partial correlations that were significant at the .05 level prior to the entry of C(SAI) 25 into the equation. These two variables (OVAL 11 and C(SC)1, appear to share some common predictive variance with C(SAI) 25. OCC ASP also has a simple correlation with Reading, significant beyond the .05 level. It appears to share variance with C(VOL)20, C(VOL)17, and ED ASP.

To illustrate the added explanatory power gained by retaining variables that pass this test, the retention of Occ.Asp., Occupational Aspiration level, tells something that is not self-evidently apparent when ED ASP, Educational Aspiration, is retained as a predictor of Reading Achievement. Occupational and Educational Aspiration are positively correlated. This makes either of them a fair choice for defining the most economical equation for predicting reading, as in Step 1. However, they are not really the same phenomena, and each contributes somewhat differently to Reading Achievement. Most important of all, in describing those children who are good readers, it seems additionally informative and useful to retain the information that they not only are ambitious for high levels of schooling, but also for high levels of occupational status in later life.

Table 1

UNROTATED FACTOR MATRIX OCCUPATIONAL VALUES

Stage I

ENGLAND - 14 YEAR OLDS		Factor 1 Loading	Factor 2 Loading	Factor 3 Loading	Factor 4 Loading	Factor 5 Loading	Factor 6 Loading
Item							
14	Altruism	.438*	.195	.255	-.383	.467*	-.149
15	Esthetics	-.201	.077	-.560*	-.258	.058	-.300
16	Independence	.198	-.062	-.541*	.259	.314	.188
17	Management	-.140	.118	.404*	-.328	.357	.610*
18	Success	-.195	-.213	.405*	.476*	.299	-.112
19	Self-Satisfaction	.592*	-.064	.222	-.208	.063	-.424*
20	Intellectual Stimulation	.255	.694*	.171	.235	-.192	-.092
21	Creativity	-.420*	.506*	-.193	.203	-.205	-.058
22	Security	.239	-.431*	.407*	.340	-.210	-.207
23	Prestige	-.693*	-.077	-.061	-.133	.224	-.125
24	Economic Returns	-.596*	-.471*	.092	.201	-.003	.086
25	Surroundings	.494*	-.399	-.202	.153	-.187	.288
26	Associates	.562*	-.371	-.357	-.077	-.082	.202
27	Variety	.253	.644*	.008	.350	-.011	.262
28	Follow Father	-.183	-.020	.242	-.464*	-.680*	.148

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

EIGENVALUES FOR ENGLISH 14-YEAR-OLDS

Factor	Eigenvalues	Percent of Variance
1	2.48	16.5
2	1.98	29.7
3	1.65	40.7
4	1.30	49.3
5	1.22	57.5
6	1.01	64.2
7	.88	70.1
8	.86	75.8
9	.78	81.0
10	.75	86.1
11	.63	90.3
12	.57	94.1
13	.48	97.3
14	.41	100.0
15	.00	100.0

Table 3

Rotated Factor Matrix

STAGE I

OCCUPATIONAL VALUES

ENGLAND - 14 YEAR OLDS		Factor 1 Loading	Factor 2 Loading	Factor 3 Loading	Factor 4 Loading	Factor 5 Loading	Factor 6 Loading
Item							
14	Altruism	-.059	.081	.766*	-.061	.113	.263
15	Esthetics	-.129	-.217	-.038	-.657*	.170	-.343
16	Independence	.332	.025	-.135	-.217	.600*	-.014
17	Management	-.122	-.028	.049	.016	-.077	.884*
18	Success	-.263	-.119	-.074	.636*	.286	.031
19	Self-Satisfaction	.170	.035	.728*	.136	-.074	-.216
20	Intellectual Stimulation	-.158	.787*	.118	.036	-.077	-.109
21	Creativity	-.418*	.349	-.417*	-.235	-.022	-.173
22	Security	.219	-.038	.096	.678*	-.127	-.265
23	Prestige	-.543*	-.437*	-.246	-.102	.068	.058
24	Economic Returns	-.185	-.508*	-.499*	.300	.001	.038
25	Surroundings	.752*	-.024	-.055	.107	.056	-.049
26	Associates	.760*	-.109	.123	-.138	.094	-.061
27	Variety	.015	.783*	-.080	-.018	.174	.143
28	Follow Father	.028	-.058	-.137	-.105	-.868*	.072

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 4

Relate-Factor Comparison Analysis

OCCUPATIONAL VALUES

GERMANY - AUSTIN 14 YEAR OLDS

	AUSTIN					
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Factor 1	.46	-.81*	-.01	.29	.18	.09
Factor 2	.13	.07	.96*	.13	-.18	.01
Factor 3	.60	.13	-.21	-.10	-.75	-.11
Factor 4	.15	.42	-.16	.87*	.11	.07
Factor 5	.62	.35	.04	-.34	.59	.13
Factor 6	.09	.11	-.02	-.15	.04	.98*

---

* Indicates cosines greater than or equal to .80 or -.80. See text for further explanation.

Table 5

OCCUPATIONAL VALUES

Stage III
(14 Year Olds)

NUMBER OF SIMILAR FACTORS (cosine ≥ .80)
(the maximum possible is 6)

	A	C	Y	G	B	E	M	J	I
Austin		6	6	4	5	3	3	0	0
Chicago			6	5	1	4	6	2	2
Yugoslavia				3	3	1	3	1	3
Germany					2	3	3	2	1
Brazil						3	3	2	2
England							2	1	1
Mexico								0	2
Japan									2
Italy									

Table 6

Item Comparison for Austin 14 and Chicago 14

OCCUPATIONAL VALUES (Factor Loadings)

		I		II		III		IV		V		VI	
	Site	AUSTIN	CHICAGO	AUSTIN	CHICAGO	AUSTIN	CHICAGO	AUSTIN	CHICAGO	AUSTIN	CHICAGO	AUSTIN	CHICAGO
	Factor No.	1	1	2	3	3	2	4	5	5	4	6	6
14	Altruism	.784	.806										
15	Esthetics									-.833	-.908		
16	Independence							.817	.760				
17	Management	(.089)*	.497	-.451	(-.277)	(-.281)	-.516	-.660	(-.259)				
18	Success	-.549	-.432					(-.161)	-.439	.457	(.376)		
19	Self-Satis.	.578	(.358)					(.234	-.456				
20	Intell. Stim.					.819	.747						
21	Creativity			(-.183)	-.588	.464	(.249)			-.497	(.105)		
22	Security			.793	.649								
23	Prestige	-.760	-.680										
24	Economic Returns	-.692	-.759										
25	Surroundings	.460	(-.013)	.706	.714								
26	Associates			(.123)	.518								
27	Variety					.771	.785						
28	Follow Father											-.907	-.911

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 7

SIGNIFICANT SEX DIFFERENCES*

AUSTIN - 14 Year Olds - Stage III

			Probability Level
C(SC)1-III	F > M**	Copes with Interpersonal Relations	$p < .001$
[i]C(SC)2-I	F < M	Copes with Anxiety	$p < .003$
C(SC)5	F > M	Neutral, not Hostile Affect toward Interpersonal Relations; Copes effectively with Authority with neutral, not hostile Affect	$p < .053$
C(SC)7	F < M	Copes with Aggression	$p < .035$
C(SC)10	F < M	Positive Attitude toward Task Achievement; lack of positive Affect toward Aggression	$p < .028$
[i]OVAL 11-VI	F > M	Values Altruism, Self-Satisfaction, and Associates; doesn't value Success, Prestige, or Economic Returns	$p < .001$
OVAL 16-D	F > M	Doesn't value Following Father's Occupation	$p < .004$
[n]C(SAI)25	F > M	Copes effectively (self-appraisal)	$p < .001$

---

* 8/25 (32%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 8

SIGNIFICANT SES DIFFERENCES*

AUSTIN - 14 Year Olds - STAGE III

			Probability Level
C(SC)7	L > M**	Copes with Aggression	$p < .007$
[s]OVAL 13-A	L > M	Values Security and Surroundings; doesn't value Management	$p < .005$
[n]C(VOL)20	L < M	Internal Locus of Control; freely expresses and accepts emotions	$p < .001$

---

* 3/25 (12%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample

[n] = No comparable instrument in the other sample

Table 9

REGRESSION ANALYSIS

AUSTIN - 10 YEAR OLDS CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
RAVEN	54.54	.001	.48	.23	.23
C(SC)3*	11.59	.001	.53	.28	.05
C(SC)1	2.70	.102	.54	.29	.01
OVAL 11	3.40	.067	.55	.30	.01
- OVAL 12	2.51	.115	.56	.31	.009
- OVAL 13	5.87	.016	.58	.34	.02
ED ASP	12.67	.001	.62	.38	.045

---

* See Appendix I for explanation of factor names

Table 10a

Stage III

REGRESSION ANALYSIS

AUSTIN - 10 YEAR OLDS CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)3-V	15.60	.001	.28	.08	.08
C(SC)1-III	4.37	.038	.32	.10	.02
OVAL 11	5.01	.026	.36	.13	.02
- OVAL 12	2.91	.09	.37	.14	.01
- OVAL 13	6.34	.013	.41	.17	.03
[i] ED ASP	12.51	.001	.48	.23	.06
[i] RAVEN	43.56	.001	.62	.38	.16
[i] BRS	21.35	.001	.67	.45	.07

---

[i] = An identical predictor or explanatory factor across samples.

Table 10b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 10 YEAR OLDS CRITERION: Reading Achievement

Predictor
Variables:

C(SC)3-V = Copes with Task Achievement

C(SC)1-III = Copes with Interpersonal Relations

OVAL 11 = Values Altruism and Intellectual Stimulation; doesn't value Prestige and Economic Returns.

- OVAL 12* = Values Creativity; doesn't value Self-Satisfaction, Security, and Surroundings.

- OVAL 13 = Values Independence; doesn't value Intellectual Stimulation and Creativity.

[i] ED ASP = Educational Aspirations

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scale

---

[i] = An identical predictor or explanatory factor across samples.

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 11

Unique and Total Variance of Achievement Variables

	READING	MATH	GPA
RAVEN (unique)	7 %	9.5%	2%
Coping and Motivation (unique)	12.5%	13 %	24%
TOTAL	32 %	37 %	38%

Table 12

REGRESSION ANALYSIS

AUSTIN - 14 YEAR OLDS CRITERION: Reading Achievement

Predictor Variables*	F	p	Multiple R	R^2	R^2 Change
+ C(VOL)20	16.89	.001	.295	.087	.087
+ C(VOL)17	9.73	.002	.367	.135	.048
+ C(SAI)25	9.49	.002	.424	.179	.045
- C(SC) 7	2.41	.122	.436	.191	.011
+ C(SC) 4	5.71	.018	.465	.217	.026
+ ED ASP	7.35	.007	.499	.249	.032
+ RAVEN	17.12	.001	.563	.317	.068

Additional Explanatory Variables:

	pr**	p	r	p
+ OVAL 11	.14	.05		
+ C(SC) 1	.17	.05		
+ OCC ASP			.22	.05

---

* These variables were in the predictive equation from the previous analyses of Step 1 and Step 2.

**Partial correlation coefficient

SECTION V

MAJOR FINDINGS AND THEIR IMPLICATIONS

COPING STYLES AND ACHIEVEMENT:
A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

The University of Texas at Austin

1981

BRAZIL - 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Brazilian 10 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivation instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. (There is no Views of Life instrument in the 10 year old samples, therefore there is no Table 8). The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Brazilian students. Sex and socioeconomic status differences are then described. Finally, the regression analyses are delineated in order to show the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, i.e., task achievement variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were five general factors: coping with anxiety, aggression, interpersonal relations, authority, and task achievement. All included a lack of negative affect in the respective behavioral area. Unit weights were constructed using those variables having a factor loading $\leq .40$. For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 6 - 10 also tended to group variables according to subaspects of the separate behavioral areas.

The Stage III factor analysis (Table 2) yielded the same tendencies, except that the authority variables split between factors 5 and 6.

As these factor analyses appeared to be yielding similar results, a comparison of the first five factors, which report coping skills in each of the behavioral areas, was examined (see Table 3). Factor 6 of the Stage III analysis was used for the comparison, instead of 5, as it was more similar to the "authority" factor of Stage I.

The comparison of the Sentence Completion factors was made on the basis of an examination of their factor content. The percent of common items for the five factors was 100%, 100%, 40%, 100%, and 60%, respectively. In cases where less than 100% of the items were similar, the variables still loaded in the same direction, but were not quite of sufficient magnitude to be significant (see factors III and V in Table 3). In Factor III, for example, hostile and depressive affect in Stage III were both loaded very near .40. In sum, these factors were highly similar across stages, indicating a stable "Brazilian" construct system at age 10, that defined coping skill in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a loading $\leq$ .40 were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the program RELATE (Veldman, 1967) is represented in Table 6. If the comparison of the factors resulted in a RELATE value of .90 (this can be interpreted like a correlation coefficient), then the two factors were highly similar and they were called "identical" factors. It can be seen that all six factors were "identical." Table 7 depicts the item comparison for these factors across the two stages. The results of this comparison indicated a time-stable construct system for Brazilian 10 year old students.

Social Attitudes Inventory

A factor analysis of the Stage I Social Attitudes Inventory (SAI) instrument is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: positive coping, and ineffective or defensive responding.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and two factors emerged. The first factor reported effective coping in the behavior areas of task achievement, authority, and anxiety. The second reported coping in the areas of aggression and interpersonal relations.

No comparison across stages was attempted.

SUMMARY OF FACTOR COMPARISON ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments, which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor 6 of Stage I C(SC)6 had no comparable factor in the second stage.

As mentioned previously, the comparison of Sentence Completion factors was made on the basis of an examination of their factor content listed in Table 3. The first five factors were very similar across stages and were referred to as "identical" factors, receiving a Roman numeral designation as indicated in Table 11.

The Occupational Values instrument was compared with the RELATE factor comparison method. All six factors were "identical" (RELATE $\geq .90$) and received Roman numeral designations, in a manner similar to the Sentence Completion. For example, in Stage I, the last Occupational Values factor (OVAL 16) received a Roman numeral XI. This corresponded to OVAL 13 in Stage III.

Table 11 presents a summary of the factor comparisons, indicating those factors that were similar across stages. The Brazilian 10 year old sample included eleven identical factors. Five of the ten Sentence Completion factors were considered identical across the two stages. All six Occupational Values factors were identical. Generally, these results indicate that the factor structures in the two samples were very similar, in that eleven of sixteen factors were identical. This stability of factor structures across samples is strong evidence that the coping and motivation patterns represented by these factors are likely to remain stable in the Brazilian 10 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males tended to report themselves as coping more effectively with anxiety and task achievement. Males also placed greater value on success and following father's occupation, but valued esthetics less than did females. They reported better overall coping than the females on the self-report questionnaire (SAI). Females more than males valued altruism, esthetics, self-satisfaction and pleasant surroundings rather than prestige or economic returns. Females also placed greater value on independence.

Stage III sex differences (Table 13) indicated that females valued intellectual challenge (i.e., intellectual stimulation, creativity, and variety), and self-satisfaction and success, but not economic returns, prestige nor management. Girls also preferred independence and pleasant associates to security.

Two "identical" factors showed sex differences for both stages. Once again, females placed greater value on personal and social areas (i.e., altruism, self-satisfaction, anxiety, independence, and associates) and less on such things as security, prestige, and economic returns. There was a noticeably high percentage (44%) of sex differences in Stage I. This, and the two stable factors across samples mentioned above, give evidence that sex differences are substantial among Brazilian 10 year old students, especially in the selection of occupational values.

SES DIFFERENCES

Stage I SES differences are listed in Table 14. The middle class coped more effectively with anxiety and task achievement. They also placed greater value on success and self-satisfaction, and following father's occupation. The lower class placed more emphasis on esthetics and management, and reported more defensive or non-effective coping behavior.

Stage III results (Table 15) showed only one SES difference. As in Stage I, the middle-class students valued success more highly, but not esthetics. Although the percentage of SES differences was not significant, and thus could be due to chance, there was one identical factor across samples, indicating stability for this particular factor. In general, there appeared to be a tendency for the middle class to be more pragmatic and to place more emphasis on concrete rewards.

SUMMARY OF REGRESSION ANALYSIS

Reading Achievement

Predictors of reading achievement for Stage I are listed in Table 16a and 16b. Good readers tended to cope well with anxiety, and to value success but not esthetics. They also had higher occupational aspirations. They reported more positive coping and less defensive behavior. Aptitude and peer ratings were also significant and important predictors. In addition, coping with authority through engagement and positive affect, and educational aspiration, correlated with reading achievement.

Good readers in Stage III (Tables 17a and 17b) coped well with interpersonal relations, and reported good coping in the areas of task achievement, authority, and anxiety. They also valued intellectual stimulation, creativity, variety, and success but not economic returns or esthetics. The aptitude and peer rating measures were important predictors. In addition, good readers tended to cope better with anxiety and task achievement and placed higher value on success and self-satisfaction, but not management.

A comparison of the two stages showed that universal factors I (coping with anxiety) and VIII (valuing success but not esthetics) were common to good readers in both stages. Both self-report (SAI) and peer report (BRS) of coping effectiveness were significant predictors of reading achievement in both stages, as was aptitude.

Math Achievement

There were no Sentence Completion factors which predicted math achievement in Stage I (Tables 18a and 18b). Good readers did tend to value success but not esthetics, and reported positive coping and lack of defensive behavior. They also had higher educational and occupational aspirations. The Raven and BRS were also important predictors.

In Stage III (Tables 19a and 19b), good readers differed from poorer readers in affect toward task achievement. aggression, and authority. They placed higher value on intellectual stimilation, creativity, variety, success, self-satisfaction, but not economic returns, management, and esthetics. On the self-report measure, good readers indicated better coping with the areas of task achievement, authority, and anxiety. The Raven and BRS predicted achievement also.

The Raven, SAI (a different instrument, but still a self-report of coping effectiveness in both stages), and BRS were predictors for both stages. The only other predictive factor common to both stages was valuing success but not esthetics.

Grade Point Average

Predictors of GPA in Stage I (Tables 20a and 20b) were the self-report (SAI) and peer report (BRS) of coping effectiveness, as well as the aptitude measure. In addition, valuing success but not esthetics correlated with GPA. In Stage III (Tables 21a and 21b) good readers tended to cope better with interpersonal relations and had higher occupational aspirations than poor readers. Once again, the SAI, BRS, and Raven were all significant predictors, common to both stages.

In Stage III (Tables 21a and 21b) good readers reported good coping on the self-report measure and also indicated good coping with interpersonal relations. Aptitude failed to be a significant predictor, but peer ratings were a powerful predictor. Occupational aspirations was also correlated with good grades.

Across stages only the peer ratings was a consistent predictor of grades.

In sum, both peer and self-reports of coping effectiveness were important predictors of success in all three areas -- reading achievement, math achievement, and GPA, for both stages. Aptitude was a predictor of all criteria in both stages except for Stage III GPA. Valuing success but not valuing esthetics was also a significant predictor for all criteria and stages but one -- Stage III GPA.

PERCENTAGE OF VARIANCE

It is also important to consider the percent of variance accounted for by aptitude and coping/motivation variables in accounting for success on the criterion measures. These are listed in Table 22.

The aptitude measure accounted for 1-7% of the variance in both reading and math achievement, for both stages. However, aptitude only accounted for 1-2% of the variance in GPA.

The coping/motivation factors accounted for 8% of the variance in reading achievement across both stages. They accounted for only 3% of the variance in math achievement and GPA for Stage I. However, in Stage III, the coping/motivation factors were very important predictors of math achievement (10.8%) and GPA (14.7%).

In Stage I, aptitude and coping factors, together, accounted for 7% of GPA, 10% of math achievement, and 22% of reading; in Stage III, the corresponding proportions were 21%, 20%, and 22%.

It appears that the coping/motivation factors were indeed. important. Especially in Stage III, they accounted for a substantial useful percentage of the variance in all three criterion measures, much more than aptitude explained.

Table I

STAGE I

SENTENCE COMPLETION

BRAZIL - 10 Year Olds		Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Att. - Authority	.078	.038	.098	.045	-.033	.077	-.003	-.078	.692*	-.193
40	Att. - Interpersonal Relations	-.021	.013	.059	.022	.080	.012	-.086	.104	.716*	.106
41	Att. - Task Achievement	.040	.051	-.079	.203	.026	.022	.063	.040	.314	.234
43	Aggression - Stance	-.014	.781*	.057	.081	-.031	.049	-.019	-.171	.041	.483*
44	Aggression -Engagement	-.071	.607*	.019	.042	-.110	.046	-.055	-.288	.062	.572*
45	Aggression -Coping Eff.	.071	.939*	.080	.092	.044	.001	-.003	.084	.025	.063
46	Aggression -Negative Aff.	-.160	-.904*	-.095	-.095	-.034	-.017	.004	-.140	-.012	.156
47	Aggression -Pos. Affect	.160	.904*	.095	.095	.034	.017	-.004	.140	.012	-.156
48	Authority- Stance	-.021	.028	.100	.578*	-.028	.006	.064	.189	.311	.208
49	Authority -Engagement	-.031	.122	.033	.288	-.121	-.155	.123	.564*	.032	-.031
50	Authority -Coping Eff.	.091	.100	.118	.903*	-.003	-.010	.024	.151	.134	.100
51	Authority -Negative Aff.	-.169	-.121	-.101	-.909*	-.055	-.022	.005	.009	.063	.104
52	Authority -Neutral Aff.	.158	.100	.123	.900*	.051	-.001	.023	-.239	-.075	-.095
53	Authority -Pos. Affect	.013	.051	-.085	-.091	.003	.076	-.096	.764*	.046	-.014
54	Anxiety - Stance	.914*	.044	.033	.029	.084	-.015	-.074	-.055	.061	.020
55	Anxiety - Engagement	.774*	.028	-.033	-.004	.076	-.030	-.060	-.068	.126	.004
56	Anxiety - Coping Eff.	.897*	.056	.077	.086	.070	-.007	-.020	.023	.008	.025
57	Anxiety - Negative Aff.	-.908*	-.088	-.048	-.121	-.026	.025	-.091	-.051	.065	.027
58	Anxiety - Neutral Aff.	.908*	.088	.048	.121	.026	-.025	.091	.051	-.065	-.027

STAGE I

SENTENCE COMPLETION

Table 1 (continued)

BRAZIL - 10 Year Olds (Continued)

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
59 Interpersonal Relations - Stance	.117	-.215	.145	.010	.094	.253	.489*	.175	-.103	.337
60 IPR - Engagement	-.018	-.077	.160	.003	-.026	.035	.845*	.024	-.074	.125
61 IPR - Coping Eff.	.023	.065	.918*	.070	-.016	-.021	.113	-.000	.074	.120
62 IPR- Negative Affect	-.094	-.109	-.950*	-.153	-.003	.043	.116	.014	-.023	.000
63 IPR - Neutral Affect	.081	.165	.866*	.201	-.000	-.116	.214	-.072	.054	-.132
64 IPR - Positive Affect	.015	-.143	.064	-.132	.007	.175	-.748*	.134	-.074	.305
65 Task Achievement -Stance	.095	.012	-.018	.008	.906*	-.061	-.009	-.069	.041	-.006
66 Task Ach. - Engagement	.158	.057	-.056	-.039	.747*	.109	-.012	-.085	-.024	-.203
67 Task Ach. - Coping Eff.	.045	-.009	.025	.069	.902*	-.167	.011	.028	.056	.135
68 Task Ach. - Negative Aff.	-.050	.054	-.157	-.098	-.508*	.623*	-.048	-.164	.021	-.211
69 Task Ach. - Neutral Aff.	.072	-.057	.130	.027	.276	-.923*	.022	.069	-.066	.035
70 Task Ach. - Pos. Affect	-.044	.014	.018	.100	.296	.609*	.033	.129	.079	.256

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

Stage III

SENTENCE COMPLETION

BRAZIL - 10 Year Olds Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
64 Task Achievement-Attitude	.022	-.083	.047	.180	-.276	-.028	-.084	.383	.016	.331
65 T.A. - Stance	.030	.075	.067	.932*	.067	-.064	.024	.073	.011	.036
66 T.A. - Engagement	-.088	.035	.167	.891*	.016	-.017	-.045	.012	-.055	.002
67 T.A. - Aid/Advice	.011	.056	.132	.838*	-.057	-.019	.038	.041	-.010	-.006
68 T.A. - Coping Effect	.131	.093	.066	.870*	.072	.047	-.036	.082	-.013	.040
69 T.A. - Hostile Affect	-.096	-.082	-.139	-.085	.023	-.032	-.068	-.684*	.229	-.165
70 T.A. - Depressive Aff.	-.063	-.001	.083	-.329	.200	-.022	-.207	-.239	-.212	.382
71 T.A. - Neutral Aff.	.084	-.034	-.027	.424*	-.114	.052	.417*	.605*	.048	-.186
72 T.A. - Positive Aff.	.034	.152	.102	-.260	-.065	-.030	-.413*	-.026	-.084	.051
73 Interpersonal Relations Attitude	-.040	.197	-.112	.011	.062	-.156	.020	-.027	.457*	.053
74 I.R. - Stance	-.005	-.019	.760*	.090	-.054	.072	.007	-.100	-.131	-.227
75 I.R. - Engagement	-.027	.077	.880*	.160	.095	.004	-.020	.059	-.033	.110
76 I.R. - Aid/Advice	-.033	.093	.878*	.162	.088	.016	-.001	.047	-.041	.122
77 I.R. - Coping Effect	.078	.064	.863*	.072	.055	.026	.009	-.006	.319	-.041
78 I.R. - Hostile Affect	.053	-.033	-.296	.042	-.024	-.022	-.008	.051	-.807*	-.072
79 I.R. - Depressive Aff.	-.247	.082	-.348	.131	.277	-.321	-.103	.009	.250	.490*
80 I.R. - Neutral Aff.	.242	-.038	.525*	-.140	-.203	.277	.089	-.049	.465*	-.335
81 I.R. - Positive Aff.	-.000	.000	.000	.000	.000	-.000	-.000	.000	-.000	-.000

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

BRAZIL - 10 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.006	.210	.316	.023	-.154	-.076	-.399	.316	.145	.323
83 Auth. - Stance	.026	.140	.084	.073	.488*	.595*	-.018	-.150	.037	.001
84 Auth. - Engagement	.057	.076	.063	-.005	.829*	.235	.041	-.027	.039	.021
85 Auth. - Aid/Advice	-.017	.079	.090	.059	.827*	.257	.033	-.011	.054	.014
86 Auth. - Coping Eff.	.072	.141	-.041	-.010	.334	.822*	-.059	.264	.029	-.031
87 Auth. - Hostile Aff.	-.001	-.059	.258	-.057	-.218	-.184	.265	-.663*	-.089	.188
88 Auth. - Depress. Aff.	-.066	-.048	-.195	.034	.009	-.800*	-.224	.242	.141	-.181
89 Auth. - Neutral Aff.	.064	.087	.006	.008	.144	.894*	.030	.232	-.073	.042
90 Auth. - Positive Aff.	-.000	.000	.000	.000	-.000	-.000	-.000	-.000	.000	-.000
91 Anxiety - Attitude	.008	-.048	.162	-.065	-.431*	.129	.003	-.043	.155	.416*
92 Anx. - Stance	.813*	-.017	-.024	.054	-.084	.028	-.018	-.114	-.136	-.040
93 Anx. - Engagement	.840*	.025	.010	.030	.202	-.116	-.062	.085	-.084	.107
94 Anx. - Aid/Advice	.828*	.009	.031	-.013	.204	-.113	-.031	.082	-.077	.105
95 Anx. - Coping Eff.	.852*	.016	.015	.022	-.002	.049	.066	.149	.199	-.073
96 Anx. - Hostile Aff.	-.370	-.064	.078	.028	-.337	.057	.097	-.266	-.377	-.048
97 Anx. - Depressive Aff.	-.720*	.029	-.076	-.015	.291	-.263	-.115	.140	.055	.100
98 Anx. - Neutral Aff.	.825*	.031	.001	.005	-.076	.186	.026	.022	.210	-.034
99 Anx. - Positive Aff.	.010	-.171	.158	-.080	.264	.042	.148	.147	-.342	-.235

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

BRAZIL - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	.022	.467*	.020	-.060	.081	.035	.645*	-.011	-.007	.051
101 Agg. - Engagement	-.051	.885*	-.006	.056	.089	-.030	.146	.013	.080	-.060
102 Agg. - Aid/Advice	-.054	.862*	-.016	.037	.108	.023	.208	.023	.043	-.037
103 Agg. - Coping Effect	.032	.902*	.048	.064	.109	.100	-.076	.092	.047	-.056
104 Agg. - Hostile Aff.	-.042	-.688*	-.021	-.118	.026	-.072	.573*	.010	-.103	.126
105 Agg. - Depressive Aff.	-.106	-.168	-.264	.092	.105	-.162	-.618*	.032	.060	-.314
106 Agg. - Neutral Aff.	.119	.779*	.206	.049	-.098	.182	-.117	-.032	.057	.100
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR BRAZIL 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

BRAZIL	I		II		III		IV		V		VI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	2	3	3	4	6	5	4		
64 Task Achievement -Attitude												
65 TA - Stance									.91	.93		
66 TA - Engagement									.75	.89		
*67 TA - Aid/Advice										.84		
68 TA - Coping Eff.									.90	.87		
**69 TA - Hostile Aff.									-.51	(-.09)		
**70 TA - Depress. Aff.										(-.33)		
71 TA - Neutral Aff.									(.28)	.42		
72 TA - Positive Aff.												
73 Interpersonal Rel. - attitude												
74 IPR - Stance					(.15)	.76						
75 IPR - Engagement					(.16)	.88						
*76 IPR - Aid/Advice						.88						
77 IPR - Coping Eff.					.92	.86						
**78 IPR - Hostile Aff.					-.95	(-.30)						
**79 IPR - Depress.Aff.						(-.35)						
80 IPR - Neutral Aff.					.37	.53						
81 IPR - Positive Aff.												

Table 3 (continued)

BRAZIL	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	2	3	3	4	6	5	4
82 Authority - Attitude										
83 Auth. - Stance							.58	.60		
84 Auth. - Engagement										
*85 Auth. - Aid/Advice										
86 Auth. - Coping Eff.							.90	.82		
**87 Auth. - Hostile Aff.							-.91	(-.18)		
**88 Auth. - Depress. Aff.								-.80		
89 Auth. - Neutral Aff.							.90	.89		
90 Auth. - Positive Aff.										
*91 Anxiety - Attitude										
92 Anx. - Stance	.91	.81								
93 Anx. - Engagement	.77	.84								
*94 Anx. - Aid/Advice		.83								
95 Anx. - Coping Eff.	.90	.85								
**96 Anx. - Hostile Aff.	-.91	(-.37)								
**97 Anx. - Depressive Aff.		-.72								
98 Anx. - Neutral Aff.	.91	.83								
*99 Anx. - Positive Aff.										

Table 3 (continued)

	I		II		III		IV		V	
BRAZIL	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	2	3	3	4	6	5	4
100 Aggression - Stance			.78	.47						
101 Agg. - Engagement			.61	.89						
*102 Agg. - Aid/Advice				.86						
103 Agg. - Coping Eff.			.94	.90						
**104 Agg. - Hostile Aff.			-.90	-.69						
**105 Agg. - Depress. Aff.				(-.17)						
*106 Agg. - Neutral Aff.				.78						
107 Agg. - Positive Aff.			.90							

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* - This variable was only present in the Stage III instrument.

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable -- "Negative Affect".

Table 4

STAGE I

OCCUPATIONAL VALUES

BRAZIL - 10 Year Olds Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	.615*	-.131	.155	.037	-.327	-.065
15 Esthetics	-.502*	-.175	-.579*	.145	-.003	-.039
16 Independence	-.020	-.015	.028	.090	.149	.888*
17 Management	.126	-.179	.036	.085	-.819*	-.157
18 Success	-.104	-.040	.840*	.102	-.068	.031
19 Self-Satisfaction	.566*	-.107	.086	.150	.400*	-.178
20 Intellectual Stimulation	.128	.754*	.034	.079	.200	-.106
21 Creativity	-.210	.677*	.114	-.205	.028	.088
22 Security	.326	-.446*	-.076	.176	.242	-.278
23 Prestige	-.776*	-.051	.020	.158	.127	.013
24 Economic Returns	-.589*	-.307	.149	.067	.149	-.279
25 Surroundings	.613*	-.129	-.097	.060	.163	-.000
26 Associates	.316	-.209	-.359	.162	-.202	.294
27 Variety	.023	.733*	-.090	.233	.011	-.072
28 Follow Father	.025	-.057	-.019	-.961*	.054	-.098

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

BRAZIL - 10 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.719*	.065	.039	-.038	.058	.073
15 Esthetics	-.218	-.196	-.025	-.013	-.826*	.065
16 Independence	-.139	-.091	-.724*	-.049	-.012	.251
17 Management	.020	-.031	.081	-.768*	.004	.025
18 Success	-.200	-.024	.060	.456*	.537*	.440*
19 Self-Satisfaction	.496*	-.054	.097	.491*	.258	-.165
20 Intellectual Stimulation	.243	.705*	.032	.121	.041	.125
21 Creativity	-.149	.583*	.001	-.089	.238	-.055
22 Security	.120	-.324	.593*	-.295	.069	.196
23 Prestige	-.770*	-.124	.034	.160	-.187	-.028
24 Economic Returns	-.593*	-.420*	.067	-.200	.288	.111
25 Surroundings	.517*	-.251	.125	.386	-.304	.153
26 Associates	.376	-.229	-.570*	-.058	.088	-.052
27 Variety	.116	.763*	.055	-.054	-.051	.073
28 Follow Father	-.095	-.128	.096	.064	.028	-.909*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR BRAZIL 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.976**	-.014	.031	.159	.139	-.039
12	.008	.996**	-.049	.066	-.028	-.018
13	-.150	.028	.112	.143	.939**	.247
14	.076	.014	.049	-.022	-.244	.965**
15	-.137	-.059	.177	.955**	-.181	-.021
16	-.008	-.057	-.975**	.190	.069	.072

---

* Similar factors
** Identical factors

Table 7

ITEM COMPARISON FOR BRAZIL 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

BRAZIL	VI		VII		VIII		IX		X		XI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	12	12	13	15	14	16	15	14	16	13[a]
14 Altruism	.62	.72										
15 Esthetics	-.50	(-.22)*			-.58	-.83						
16 Independence											.89	.72
17 Management									-.82	-.77		
18 Success					.84	.54	(.10)	.44	(-.07)	.46		
19 Self-Satis.	.56	.50							.40	.49		
20 Intell. Stim.			.75	.71								
21 Creativity			.68	.58								
22 Security			-.45	(-.32)							(-.28)	-.59
23 Prestige	-.78	-.77										
24 Economic Ret.	-.59	-.59	(-.31)	-.42								
25 Surroundings	.61	.52										
26 Associates											(.29)	.57
27 Variety			.73	.76								
28 Follow Father							-.96	-.91				

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

[a] The signs in this factor have been reversed as the factors are mirror images. See text for further details.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

BRAZIL - 10 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	.824*	.068
2 Passive Coping	.835*	.038
3 Active Defensive	-.089	.872*
4 Passive Defensive	.345	.628*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

BRAZIL - 10 Year Olds		Factor Loading	
Sub-Scores		Factor 17	Factor 18
37	Task Achievement	.675*	.141
38	Authority	.605*	.320
39	Aggression	.209	.597*
40	Interpersonal Relations	.230	.696*
41	Anxiety	.490*	.033

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

BRAZIL - 10 Year Olds

COMMON FACTORS

New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1*	1*	Copes with Anxiety
II	C(SC)	2	2	Copes with Aggression
III	C(SC)	3	3	Copes with Interpersonal Relations
IV	C(SC)	4	6	Copes with Authority
V	C(SC)	5	4	Copes with Task Achievement
VI	OVAL	11	11	Values Altruism, Self-Satisfaction and Surroundings; doesn't value Prestige and Economic Returns. (Does not value Esthetics.)**
VII	OVAL	12	12	Values Intellectual Stimulation, Creativity, and Variety (doesn't value Security and Economic Returns).
VIII	OVAL	13	15	Values Success; doesn't value Esthetics.
IX	OVAL	14	16	Doesn't value Following Father; (values Success).
X	OVAL	15	14	Values Self-Satisfaction; doesn't value Management. (Values Success.)
XI	OVAL	16	13	Values Independence (values Surrounding; doesn't value Security).

UNIQUE FACTORS

Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
C(SC)	6	-	Positive or Negative; not Neutral Affect toward Task Achievement.
C(SC)	7	-	Copes with Interpersonal Relations via Stance and Engagement, without Positive Affect.
C(SC)	8	-	Engagement of Authority with Positive Affect.
C(SC)	9	-	Positive Attitudes toward Authority and Interpersonal Relations
C(SC)	10	-	Copes with Aggression via Stance and Engagement
C(SC)	-	5	Copes with Authority via Stance, Engagement; does not seek Aid/Advice, with Negative Attitude toward Anxiety.
C(SC)	-	7	Neutral, not Positive Affect toward Task Achievement; Copes with Aggression via Stance with Hostile, not Depressive Affect.
C(SC)	-	8	Neutral, not Hostile Affect toward Task Achievement, not Hostile Affect toward Authority.
C(SC)	-	9	Positive Attitude, with Neutral, not Hostile Affect toward Interpersonal Relations.
C(SC)	-	10	Depressive Affect toward Interpersonal Relations; Positive Attitude toward Anxiety.

---

* These numbers appear in the Factor Analysis Tables 1, 2, 4, 5.

** The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

BRAZIL - 10 Year Olds - STAGE I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance & Engagement with neutral not negative Affect	$p < .001$
C(SC)5-V	F < M	Copes effectively with Task Achievement via Stance & Engagement without negative Affect	$p < .025$
C(SC)6	F > M	Negative & positive, not neutral Affect towards Task Achievment	$p < .037$
[i]OVAL 11-VI	F > M	Values Altruism, Esthetics, Self-satisfaction, & Surroundings; doesn't value Prestige & Economic Returns.	$p < .001$
OVAL 13-VIII	F < M	Values Success; doesn't value Esthetics.	$p < .002$
OVAL 14-IX	F < M	Follows Father	$p < .001$
[i]OVAL 16-XI	F > M	Values Independence	$p < .001$
[n]C(SAI)17	F < M	Self-report of good coping	$p < .018$

---

* 8/18 (44%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample.

Table 13

SIGNIFICANT SEX DIFFERENCES*

BRAZIL - 10 Year Olds -- STAGE III

			Probability Level
[i]OVAL 11-VI	F > M**	Values Altruism, Self-satisfaction, and Surroundings; does not value Prestige & Economic Returns	$p < .001$
OVAL 12-VII	F > M	Values Intellectual Stimulation, Creativity, & Variety; doesn't value Economic Returns.	$p < .006$
[i]OVAL 13-XI	F > M	Values Independence & Associates; doesn't value Security	$p < .038$
OVAL 14-X	F > M	Values Success & Self-satisfaction; doesn't value Management.	$p < .031$

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

Table 14

SIGNIFICANT SES DIFFERENCES*

BRAZIL - 10 Year Olds - STAGE I

			Probability Level
C(SC)1-I	L < M**	Copes effectively with Anxiety via Stance & Engagement with neutral, not negative Affect	$p < .001$
C(SC)5-V	L < M	Copes effectively with Task Achievement via Stance & Engagement without negative Affect	$p < .02$
[i]OVAL 13-VIII	L < M	Values Success; doesn't value Esthetics	$p < .001$
OVAL 14-IX	L < M	Follows Father	$p < .001$
OVAL 15-X	L < M	Values Self-Satisfaction; doesn't value Management	$p < .005$
[n]C(SAI)18	L > M	Self-report of defensive coping	$p < .025$

---

* 6/18 (33%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample.

Table 15

SIGNIFICANT SES DIFFERENCES*

BRAZIL - 10 Year Olds - STAGE III

			Probability Level
[i]OVAL 15-VIII	L < M**	Values Success; doesn't value Esthetics	$p < .038$

---

* 1/18 (6%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

Table 16a.

STAGE I

REGRESSION ANALYSIS

BRAZIL - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)18	14.80	.001	.21	.04	.04
[n] C(SAI)17	17.71	.001	.30	.09	.05
[i] C(SC)1-I	4.35	.038	.32	.10	.01
[i] OVAL 13-VIII	4.08	.044	.34	.11	.01
OCC ASP	13.20	.001	.38	.15	.03
[i] RAVEN	32.40	.001	.47	.22	.07
[i] BRS	20.61	.001	.52	.27	.05

Additional Explanatory Variables:

	pr	p	r	p
C(SC)8			.12	.05
ED. ASP	.21	.001		

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

-[n]C(SAI)18* = Does not show defensive behavior

[n]C(SAI)17 = Copes effecitvely

[i]C(SC)1-I = Copes with Anxiety

[i]OVAL 13-VIII = Values Success; not Esthetics

OCC ASP = Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)8 = Engages Authority with Positive Affect

ED ASP = Educational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

STAGE III

REGRESSION ANALYSIS

BRAZIL - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)17	10.07	.002	.26	.07	.07
C(SC)3-III	5.66	.02	.33	.11	.04
OVAL 12-VII	5.21	.02	.37	.14	.03
[i]OVAL 15-VIII	4.28	.04	.41	.17	.03
[i]RAVEN	8.70	.004	.47	.22	.05
[i]BRS	11.10	.001	.53	.28	.06

Additional Explanatory Variables:

	pr	p	r	p
[i]C(SC)1-I			.20	.05
C(SC)4-V			.17	.05
OVAL 14-X			.18	.05

---

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

[n]C(SAI)17 = Copes effectively

C(SC)3-III = Copes with Interpersonal Relations

OVAL 12-VII= Values Intellectual Stimulation, Creativity, and Variety; doesn't value Economic Returns

[i]OVAL 15-VIII = Values Success not Esthetics

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]C(SC)1-I = Copes with Anxiety with Neutral Affect

C(SC)4-V = Copes with Task Achievement

OVAL 14-X = Values Success and Self-Satisfaction; doesn't value Management

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 18a.

STAGE I

REGRESSION ANALYSIS

BRAZIL - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}-C(SAI)18	7.56	.006	.15	.02	.02
^{n} C(SAI)17	5.54	.019	.19	.04	.02
ED ASP	8.55	.004	.25	.06	.02
^{i} RAVEN	13.18	.001	.31	.10	.04
^{i} BRS	31.62	.001	.42	.18	.08

Additional Explanatory Variables:

	pr	p	r	p
^{i}OVAL 13-VIII			.13	.05
OCC. ASP.	.13	.014		

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

-[n]C(SAI)18* = Does not show defensive behavior

[n]C(SAI)17 = Copes effectively

ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]OVAL 13-VIII = Values Success; not Esthetics

OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a predictive value.

Table 19a.

STAGE III

REGRESSION ANALYSIS

BRAZIL - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}C(SC)17	6.07	.02	.21	.04	.04
C(SC)7	4.37	.04	.27	.07	.03
-C(SC)8	5.20	.02	.33	.11	.03
OVAL 12-VII	5.32	.02	.38	.14	.03
^{i}RAVEN	9.75	.002	.45	.20	.06
^{i}BRS	7.35	.01	.49	.24	.04

Additional Explanatory Variables:

	pr	p	r	p
OVAL 14-X			.19	.05
^{i}OVAL 15-VIII			.17	.05

---

[n] = No comparable instrument in the other sample

[i] - An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

[n]C(SC)17 = Copes effecitvely

C(SC)7 = Neutral, not Positive Affect toward Task Achievement; confronts Aggression with Hostility, not Depressive Affect.

-C(SC)8* = Neutral, not Hostile Affect toward Task Achievement, not Hostile Affect toward Authority.

OVAL 12-VII= Values Intellectual Stimulation, Creativity and Variety; does not value Economic Returns.

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

OVAL 14-X = Values Success and Self-Satisfaction, does not value Management.

[i]OVAL 15-VIII= Values Success not Esthetics.

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

STAGE I

REGRESSION ANALYSIS

BRAZIL - 10 Year Olds CRITERION: GRADE POINT AVERAGE

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}C(SAI)17	9.59	.002	.17	.03	.03
^{n}-C(SAI)18	6.72	.010	.22	.05	.02
RAVEN	7.25	.007	.26	.07	.02
^{i}BRS	156.98	.001	.60	.37	.30

Additional Explanatory Variables:

	pr	p	r	p
OVAL 13-VIII			.11	.05

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 10 Year Olds CRITERION: Grade Point Average

Predictor
Variables:

^{n}(SAI)17 = Copes effectively

$-^{n}$C(SAI)18* = Does not show defensive behavior

RAVEN = Raven Progressive Matrices

^{i}BRS = Behavior Rating Scale

Additional Explanatory Variables:

OVAL 13-VIII = Values Success; not Esthetics

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

STAGE III

REGRESSION ANALYSIS

BRAZIL - 10 Year Olds CRITERION: Grade Point Avera

Predictor Variables:	F	p	Multiple R	R^2	R^2 Chan
[n]C(SAI)17	16.65	.001	.33	.11	.11
C(SC)3-III	14.85	.001	.44	.20	.09
RAVEN	1.39	.24 (NS)	.45	.21	.01
[i]BRS	17.97	.001	.55	.30	.09

Additional Explanatory Variables:

	pr	p	r	p
[n]C(SAI)18			.18	.05
OCC ASP			.21	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 10 Year Olds CRITERION: Grade Point Average

Predictive Variables:

[n] C(SAI)17 = Copes effectively (with Task Achievement, Authority, and Anxiety)

C(SC)3-III = Copes with Interpersonal Relations with Neutral Affect

RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scale

Additional Explanatory Variables:

[n] C(SAI)18 = Copes effectively (with Aggression and Interpersonal Relations

OCC ASP = Occupational Aspirations

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

BRAZIL - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	7%	4%	2%
Coping/Motivation (unique)	8%	3.2%	3.3%
Total	22%	10%	7%

BRAZIL - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	5%	6%	1%
Coping/Motivation (unique)	8.7%	10.8%	14.7%
Total	22%	20%	21%

Table 23

CORRELATIONS AMONG THE CRITERIA

BRAZIL - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.27		.40
GPA	.35		

BRAZIL - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.32		.34
GPA	.27		

BRAZIL - 14 YEAR OLDS - RESULTS AND DISCUSSION

The findings presented in this section provide a detailed picture of the coping patterns that were associated with achievement in Brazilian students in both the 1965 (Stage I) and 1968 (Stage III) samples. The results include the factor analysis of the coping/motivational instruments: Sentence Completion, Views of Life, Occupational Values, and the Social Attitudes Inventory. The factor comparison findings indicate the degree of correspondence between the two samples of Brazilian students. Sex and socioeconomic status differences are then described. Finally, the regression analyses show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

The Sentence Completion factored into 10 factors in both samples. The results of the first sample are presented in Table 1. The factors were generally composed of the coping styles; that is, engagement, along with coping effectiveness and the affect scores for each behavioral area. Thus, several of the factors can be titled coping with aggression, authority, anxiety, interpersonal relations, and task achievement. The other factors included the attitude items and certain sub-sets of variables within one or another behavioral areas.

The factor analysis results for the second sample are presented in Table 2. The variables in this sample also clustered according to the five behavioral areas: aggression, authority, anxiety, interpersonal relations, and task achievement.

The comparison of the factor structures appears in Table 3. This table presents only the factors that were clearly similar. For the Brazilian samples, the factor structures appear to be very similar when one compares those major factors that corresponded to the five behavioral areas. In general, the factors structures of the two samples were quite similar.

Occupational Values

The factor analysis for the first sample is presented in Table 4. The Occupational Values instrument factored into six factors.

The second sample factored into six factors, also, as shown in Table 5.

Table 6 shows the factor comparison of the first and second samples. This comparison shows that all 6 factors were similar in the two samples; that is, all six factors resulted in a cosine of .80 or better. Table 7 shows the item comparison of all the similar factors. From this table it can be seen that there was a close correspondence of factor-content in the two samples.

Views of Life

The Views of Life was administered only to students in the second sample. This instrument factored into 8 factors which are presented in Table 8.

Social Attitudes Inventory

The results of the Social Attitudes Inventory (I) administered to the first sample is provided in Table 9. This instrument factored into two factors, the first of which is good coping, and the second, defensive responding.

The factor analysis of the Social Attitudes Inventory (III) in the second sample is illustrated in Table 10. The analysis resulted in one factor; that is, children's reports of their coping behavior clustered on one main factor, suggesting that they tended to report coping abilities in all five behavioral areas in a similar manner. Since these were different instruments no factor comparison was attempted.

SUMMARY OF FACTOR COMPARISON ACROSS STAGES

The complete comparison of all of the Sentence Completion and Occupational Values factors from Stage I and Stage III is presented in Table 11. (The other instruments were not administered to both samples, therefore no comparison could be made.) If a factor received a value of .9 or better on the comparison analysis, this indicates that the factors were very similar in their item content. In many cases the factors were almost identical. If two factors in both Stages were this similar they were called "universal" factors and were given a Roman numeral designation. If the factors were not "identical," but still very similar (a Relate value of .8 to .9), then they received an alphabetic designation and were called "similar" factors. In the Sentence Completion, only "universal" factors are shown since the RELATE program for exact statistical comparison could not be used. In the Brazil 14-year-old sample, five of the 10 Sentence Completion factors were universal across the two stages, and 5 of the 6 Occupational Values factors were universal across the two stages. The other Occupational Values factor was similar in the two stages. The factor structures in these two samples were, in general, very similar. This stability of factor structures across samples indicates that these coping dimensions probably are fairly stable across time in the Brazilian 14-year-old population.

SEX DIFFERENCES

In the Stage I Brazilian 14-year-old sample (Table 12), males tended to be more effective than females at coping with aggression, anxiety, authority, and interpersonal relations. Of the 18 tests, there were 8 significant sex differences. Females tended to get higher scores than males on positive affect towards authority figures. As to Occupational Values, males valued success and economic returns rather than esthetics, more than did females. Males more than females also valued following father and not caring so much about having pleasant associates.

In the second sample (Stage III) of the Brazilian 14 year-olds (Table 13) there were 10 significant sex differences in the 25 tests. Males tended to cope better than females with anxiety, aggression and authority. Females had more affective responses than males with regard to these behavioral areas. On Occupational Values, females valued more than males altruism, self-satisfaction and pleasant surroundings, as opposed to creativity, prestige and economic returns. Females valued independence and pleasant associates more than males. Males, more than females, placed value upon following father and on-job security. On the Views of Life, males preferred self-initiative and earned status; and they had a more positive self-concept than females. Females, however, on the Social Attitudes Inventory reported a greater ability to cope effectively than males. (This contrasts with their poorer showing on the Sentence Completion.)

There were three universal coping factors that showed consistent sex differences across both stages on the Sentence Completion. Males coped more effectively with anxiety, aggression, and authority than females in both of these Brazilian 14-year-old samples. There was only one consistent sex difference across stages for Occupational Values; it showed males were more likely than females to follow father.

SES DIFFERENCES

In the Stage I sample there were 7 social class differences out of 18 possible ones. Middle class students coped more effectively with aggression than lower class students, and they also showed more emotion about task achievement. Lower class students coped better with anxiety and expressed more positive attitudes toward authority and interpersonal relations.

In Occupational Values, middle class students valued following father, and independence, more than lower class students. The lower class students valued pleasant associates more than middle class students. On the SAI self-report of coping, lower class students reported a greater amount of defensive behavior.

In the Stage III sample, there were 10 out of 25 social class differences. Lower-class students coped more effectively than the middle class with aggression, although they evidenced more depressive affect in several areas. Middle-class students had more neutral affect toward task achievement. On Occupational Values, middle-class students placed more value on independence and on associates than the lower class. Also, the middle class showed a stronger preference for immediate action, earned status, and direct confrontation of problems. On the Views of Life, the middle class more often felt they were in control of the situation, held a more simple view of life, preferred independent action, and tended to be active rather than passive in stressful situations. Lower-class children preferred to solve their problems themselves. In their self-report of overall coping ability, the lower class reported better coping ability than the middle class.

There was only one universal coping factor in both samples that showed social class differences (coping with aggression); and this was significant in the opposite direction in the two stages. For the Occupational Values, there was only one universal factor with social class differences; middle-class students valued independence more than lower-class children. There was little evidence of a consistent pattern of social class differences stable across time, among the 14-year-old Brazilian students.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

In the Stage I sample (Tables 16a and 16b) children who received high scores in reading achievement coped well in interpersonal relationships, coped well with authority figures, showed less defensive behavior, but also less often expressed positive attitudes toward authority and interpersonal relationships. They valued their co-workers but did not wish to follow their fathers' occupations. They had high educational aspirations. The Aptitude and Behavior Rating Scales also sifificantly predicted reading achievement.

In the Stage III sample (Tables 17a and 17b), children who had high reading achievement scores were more independent, more deliberate, more intrinsically motivated, and more cooperative with other children. They coped well with aggression, but not in a hostile manner. They placed high value on independence and associates. In addition to these predictive variables, a neutral attitude toward task achievement, high educational aspirations, and a belief that they are in control of their (non-complex) environment were related to successful reading achievement. In this sample, aptitude and the peer behavior ratings were not significant predictors of reading achievement.

There were no universal or similar factors that were predictive of reading achievement in both samples. The only similarity was the predictiveness of educational aspirations. Even the aptitude and behavior rating scales failed to predict in the second sample (Stage III). This was one of the most striking "cohort" differences in all the national samples.

Math Achievement

In the Stage I sample (Tables 18a and 18b), children who did well in math were independent and coped well with authority. They also had high educational aspirations. Aptitude and the Behavior Rating Scales were significant predictors.

In the Stage III sample (Tables 19a and 19b), math achievement was predicted by tendency to solve problems by oneself and by coping well with authority in a non-hostile manner. These children valued success, but not management, security, following father, esthetics, or associates. These children did have high educational aspirations. Aptitude, but not the Behavior Rating Scale, predicted math achievement. In addition to these predictors, valuing independence and associates was correlated with math achievement. (Note OVAL 13 and OVAL 14).

The comparison of the two samples indicated some similarities. Universal factor IV was predictive in both samples. Universal factor X was predictive in Stage I and also correlated with math achievement in Stage III. Children who coped well with authority and valued independence tended to do well in math in both samples.

There were, however, some differences between the two samples. Educational aspirations had opposite signs in the two samples. There were several significant factors in the second sample that did not appear in the first sample. The Behavior Rating Scale, on the other hand, was not significant in the second sample.

Grade Point Average

In the Stage I sample (Tables 20a and 20b), children who got good grades valued associates, and did not value following father. This was the only significant coping or motivation predictor. The Aptitude and Behavior Rating Scales did predict GPA.

In the Stage III sample (Tables 21a and 21b), children who received good grades in school coped well with authority and valued altruism, self-satisfaction, and surroundings rather than creativity, prestige or economic returns. Aptitude was not a significant predictor when these coping/motivation variables were already in the equation. The BRS was a significant predictor of GPA.

The comparison of these two samples indicates few similarities. No universal or similar factors were predictors in both samples. The BRS was a predictor in both samples, but the Aptitude measure was not.

PERCENT OF VARIANCE SUMMARY

In addition to examining the individual predictive variables in the samples, the percent of variance accounted for by these variables is also necessary for a complete picture. Despite the fact that there was little similarity between the two samples, except in the case of math achievement, the coping and motivation variables did account for a substantial amount of the variance of some of the achievement measures (see Table 22). An increase in predictiveness from Stage I to Stage III can be seen for the coping/motivation measures in reading and math achievement. This increase cannot be attributed solely to the inclusion of the Views of Life instrument, although its variables did contribute to this increase. It is important to note how low was the predictive power of aptitude in both samples. The coping/motivation variables were weakest in predicting teacher grades, giving rise to a question as to what criteria the teachers used for assigning grades. Grades correlated only .27 with reading and .34 with math test scores, suggesting that neither subject mastering nor general coping skill were the primary considerations in assigning grades.

Table 1

STAGE I

SENTENCE COMPLETION

BRAZIL - 14 Year Olds		Loadings									
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Attitude - Authority	.010	.105	.101	.144	.047	.033	-.066	.718*	.067	-.001
40	Att. - Interpersonal Rel.	.016	.127	.144	.048	-.053	.028	-.028	.739*	-.016	-.065
41	Att. - Task Achievement	.057	.120	.303	.140	.115	.157	.105	.315	.271	.185
43	Aggression - Stance	.882*	.036	.012	.111	.048	-.029	.075	.125	.033	.101
44	Aggression - Engagement	.605*	-.015	-.080	-.061	-.060	-.128	.032	.312	-.097	.150
45	Aggression - Coping Eff	.939*	.125	.061	.139	.051	.045	-.002	-.048	.069	-.034
46	Aggression - Neg. Affect	-.894*	-.150	-.077	-.140	-.058	-.066	.069	.117	-.035	.099
47	Aggression - Pos. Affect	.894*	.150	.077	.140	.058	.066	-.069	-.117	.035	-.099
48	Authority - Stance	.158	.020	.168	.582*	.174	.028	.111	.256	.372	.121
49	Authority - Engagement	.016	-.037	-.045	.307	.129	-.247	-.115	.243	.358	-.140
50	Authority - Coping Eff.	.145	.103	.091	.886*	.127	-.025	.049	.204	.199	.025
51	Authority - Neg. Affect	-.170	-.133	-.073	-.916*	-.109	.024	-.002	.023	.080	.022
52	Authority - Neutral Aff.	.141	.132	.043	.885*	.119	-.025	.005	-.023	-.360	-.043
53	Authority - Pos. Affect	.060	-.022	.081	-.073	-.052	.008	-.008	.005	.885*	.069
54	Anxiety - Stance	.087	.917*	.088	.072	.086	.008	-.015	.078	-.033	.000
55	Anxiety - Engagement	-.032	.728*	.025	,009	.134	.044	-.049	.170	.011	-.083
56	Anxiety - Coping Eff.	.148	.878*	.078	.050	.042	-.018	.034	.045	-.028	.072
57	Anxiety - Neg. Affect	-.105	-.940*	-.056	-.084	-.025	.031	-.034	.012	-.012	-.035
58	Anxiety - Neutral Aff.	.105	.940*	.056	.084	.025	-.031	.034	-.012	.012	.035

Table 1 (continued)

STAGE I

SENTENCE COMPLETION

	Loadings									
BRAZIL - 14 Year Olds (continued)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	-.000	.020	.041	.159	.156	-.015	.791*	-.230	-.005	.082
60 IPR - Engagement	-.029	.013	.040	-.071	.122	.031	.846*	.117	-.013	-.272
61 IPR - Coping Eff.	.043	.093	.116	.085	.882*	-.017	.280	.059	.070	.043
62 IPR - Negative Affect	-.064	-.146	-.073	-.179	-.945*	.047	.005	.025	.020	-.118
63 IPR - Neutral Affect	.069	.135	.100	.181	.938*	-.063	.036	-.009	-.043	-.101
64 IPR - Positive Affect	-.020	.043	-.103	-.005	.031	.060	-.157	-.060	.085	.825*
65 Task Achievement - Stance	.041	.105	.917*	.084	.070	-.086	.000	.066	.065	-.070
66 Task Ach. - Engagement	-.035	.094	.843*	.088	.019	-.028	.001	.022	.080	-.200
67 Task Ach. - Coping Eff.	.108	.090	.902*	.043	.112	-.065	.034	.157	-.030	.098
68 Task Ach. - Negative Aff.	-.140	-.043	-.498*	-.023	-.165	.410*	-.094	-.171	.148	-.414*
69 Task Ach. - Neutral Aff.	.038	.030	.328	.040	.115	-.896*	.035	.026	-.053	.160
70 Task Ach. - Pos. Affect	.087	.000	.035	-.032	.002	.856*	.044	.133	-.073	.188

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

	Loadings									
BRAZIL - 14 Year Olds	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement Attitude	.357	-.037	-.004	.133	-.216	.045	.357	-.173	-.051	.086
65 T.A. - Stance	.916*	.071	.158	-.023	-.004	-.084	-.022	.127	.042	.027
66 T.A. - Engagement	.932*	.056	.128	-.023	.001	.086	-.019	.103	-.013	-.028
67 T.A. - Aid/Advice	.898*	.009	.069	-.061	.000	.032	-.032	.143	-.041	-.004
68 T.A. - Coping Effect	.907*	.065	.165	-.036	.040	-.004	.000	.091	.010	.110
69 T.A. - Hostile Affect	-.252	-.029	-.032	-.070	-.175	.049	-.035	-.235	-.057	-.606*
70 T.A. - Depressive Aff.	-.130	-.098	-.009	-.011	-.232	.062	-.098	-.574*	.083	.011
71 T.A. - Neutral Aff.	.272	.051	.027	.066	.060	.089	.027	.875*	.002	.205
72 T.A. - Positive Aff.	-.075	.044	-.005	-.032	.277	-.231	.084	-.553*	-.039	.174
73 Interpersonal Relations Attitude	.101	-.052	.038	-.027	.036	.003	.249	-.105	.307	-.074
74 I.R. - Stance	.047	.057	.838*	.006	.168	-.033	-.058	-.005	-.105	-.066
75 I.R. - Engagement	.212	.101	.889*	.191	.036	-.027	.027	-.047	.078	-.067
76 I.R. - Aid/Advice	.195	.105	.887*	.173	.024	-.027	.024	-.043	.077	-.067
77 I.R. - Coping Effect	.132	.101	.935*	.075	.020	.073	.039	.054	.011	.063
78 I.R. - Hostile Affect	.099	.055	-.585*	.051	.166	-.343	-.257	-.146	-.051	-.245
79 I.R. - Depressive Aff.	-.147	-.101	-.208	.360	-.418*	-.054	.250	.062	.463*	-.152
80 I.R. - Neutral Aff.	.062	.041	.592*	-.326	.229	.288	-.009	.037	-.372	.283
81 I.R. - Positive Aff.	-.163	.019	-.072	-.046	-.100	.014	-.139	.228	.404*	.209

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

BRAZIL - 14 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.312	.099	.091	.120	.146	.226	.224	-.144	.340	.085
83 Auth. - Stance	.111	.167	.154	.103	.561*	.083	.442*	.151	-.102	-.128
84 Auth. - Engagement	-.054	.028	.045	.050	.253	.050	.878*	.025	.066	.074
85 Auth. - Aid/Advice	-.043	.094	.045	.010	.229	.057	.875*	.109	.027	.038
86 Auth. - Coping Eff.	-.004	.059	.075	.119	.833*	.122	-.325	-.030	.110	.101
87 Auth. - Hostile Aff.	.055	.038	-.133	-.128	-.516*	-.055	-.093	.130	-.591*	-.269
88 Auth. - Depress.Aff.	-.002	-.109	.045	-.008	-.584*	-.080	-.011	-.159	.511*	.273
89 Auth. - Neutral Aff.	-.043	.061	.072	.113	.922*	.114	.086	.028	.054	-.010
90 Auth. - Positive Aff.	-.000	-.000	-.000	-.000	-.000	.000	.000	-.000	-.000	.000
91 Anxiety - Attitude	.283	-.128	-.135	.280	-.022	.024	.276	-.134	.081	.291
92 Anx. - Stance	-.002	.821*	.093	.040	.054	-.163	.003	.179	.038	-.140
93 Anx. - Engagement	.082	.846*	.098	.166	-.057	.110	.068	-.11[illegible]	.044	-.019
94 Anx. - Aid/Advice	.088	.842*	.073	.156	-.071	.113	.081	-.115	.047	-.023
95 Anx. - Coping Eff.	.027	.881*	.086	-.041	.120	-.086	.051	.095	-.067	.187
96 Anx. - Hostile Aff.	.052	-.362	-.083	-.037	.132	-.075	-.046	.107	-.009	-.560*
97 Anx. - Depressive Aff.	-.013	-.626*	.005	.230	-.328	-.008	.132	-.222	.154	-.033
98 Anx. - Neutral Aff.	.099	.671*	-.035	-.152	.177	.207	-.070	.006	-.110	.475*
99 Anx. - Positive Aff.	-.254	.180	.169	-.069	.088	-.348	-.044	.289	-.045	-.302

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
BRAZIL - 14 Year Olds										
Item										
100 Aggression - Stance	-.094	.046	.121	.711*	.161	-.210	-.022	.128	-.207	.132
101 Agg. - Engagement	-.015	.040	.105	.794*	.061	.362	.069	-.025	.012	-.013
102 Agg. - Aid/Advice	.016	.078	.102	.788*	.044	.349	.063	-.012	.011	-.030
103 Agg. - Coping Effect	.079	.015	.199	.554*	.137	.621*	.041	.051	-.014	.048
104 Agg. - Hostile Aff.	-.112	-.049	-.040	-.046	-.118	-.889*	-.077	-.070	-.255	.003
105 Agg. - Depressive Aff.	.051	-.044	-.064	-.348	-.073	.190	.080	-.046	.625*	-.031
106 Agg. - Neutral Aff.	.089	.076	.078	.246	.165	.821*	.035	.099	-.089	.014
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR BRAZIL 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V		VI	
BRAZIL	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	2	3	1	4	5	5&7	3	6	8[a]
64 Task Achievement - Attitude												
65 TA - Stance					.92	.91						
66 TA - Engagement					.84	.93						
*67 TA - Aid/Advice						.90						
68 TA - Coping					.90	.91						
**69 TA - Hostile					-.50	(-.25)					.41	
**70 TA - Depressive						(-.13)						.57
71 TA - Neutral											-.90	-.88
72 TA - Positive											.86	.55
73 Interpersonal Relations - Attitude												
74 IPR - Stance									(.16).79	.84		
75 IPR - Engagement									(.12).85	.89		
*76 IPR - Aid/Advice										.89		
77 IPR - Coping									.88	.93		
**78 IPR - Hostile									-.95	-.58		
**79 IPR - Depressive										(-.21)		
80 IPR - Neutral									.94	.59		
81 IPR - Positive												

Table 3 (continued)

BRAZIL	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	2	3	1	4	5	5	3
82 Authority - Attitude										
83 Auth. - Stance							.58	.56		
84 Auth. - Engagement										
*85 Auth. - Aid/Advice										
86 Auth. - Coping							.89	.83		
**87 Auth. - Hostile							-.92	-.52		
**88 Auth. - Depressive								-.58		
89 Auth. - Neutral							.89	.92		
90 Auth. - Positive										
*91 Anxiety - Attitude										
92 Anxiety - Stance			.92	.82						
93 Anxiety - Engagement			.73	.85						
*94 Anxiety - Aid/Advice				.84						
95 Anxiety - Coping			.88	.88						
**96 Anxiety - Hostile			-.94	(-.36)						
**97 Anxiety - Depressive				-.62						
98 Anxiety - Neutral			.94	.67						
*99 Anxiety - Positive										

Table 3 (continued)

BRAZIL	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	2	3	1	4	5	5	3
100 Aggression - Stance	.88	.71								
101 Aggression - Engagement	.61	.79								
*102 Aggression - Aid/Advice		.79								
103 Aggression - Coping	.94	.55								
**104 Aggression - Hostile	-.89	(-.05								
**105 Aggression - Depressive		(-.35)								
*106 Aggression - Neutral										
107 Aggression - Positive	.89	.0								

---

* - This variable was only present in the Stage III instrument

** - In the Stage I instrument, both Hostile and Depressive affect were scored as one variable "Negative Affect"

[a] The signs in this factor have been reversed as the factors are mirror images. See text for further details.

Table 4

STAGE I

OCCUPATIONAL VALUES

BRAZIL - 14 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	.622*	.010	-.192	.027	-.167	-.258
15	Esthetics	-.621*	-.221	-.401*	.214	-.131	-.284
16	Independence	-.108	-.015	-.019	-.020	-.039	.880*
17	Management	-.042	-.050	.023	-.090	.913*	-.065
18	Success	-.012	-.068	.837*	.045	-.036	-.038
19	Self-Satisfaction	.593*	-.050	.136	-.095	-.451*	-.143
20	Intellectual Stimulation	.295	.716*	.028	.072	-.204	-.077
21	Creativity	-.283	.655*	-.084	-.196	.028	-.126
22	Security	.310	-.429*	.289	-.133	-.132	-.289
23	Prestige	-.796*	-.111	.023	.090	-.157	-.101
24	Economic Returns	-.404*	-.344	.451*	-.023	.371	.100
25	Surroundings	.636*	-.168	-.063	.335	.020	-.037
26	Associates	.173	-.171	-.338	.685*	-.061	.268
27	Variety	.080	.731*	.014	.055	.038	.084
28	Follow Father	.135	-.190	-.270	-.786*	.051	.219

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

BRAZIL - 14 Year Olds Item		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14	Altruism	.717*	-.167	-.003	-.148	-.123	-.137
15	Esthetics	-.141	-.156	-.655*	-.313	-.313	.174
16	Independence	-.043	-.044	.011	.840*	-.058	-.005
17	Management	-.136	-.155	.041	-.019	-.041	-.924*
18	Success	.107	-.181	.781*	-.056	-.150	.108
19	Self-Satisfaction	.681*	-.024	.309	-.182	.054	.173
20	Intellectual Stimulation	.236	.753*	.058	-.123	-.180	.228
21	Creativity	-.400*	.578*	.252	.059	-.235	.008
22	Security	.016	-.251	.174	.151	.710*	.016
23	Prestige	-.679*	-.222	.006	-.373	-.253	.082
24	Economic Returns	-.660*	-.331	.088	-.093	.096	-.145
25	Surroundings	.469*	-.263	.022	.355	-.144	.319
26	Associates	.316	-.097	-.534*	.434*	-.132	.170
27	Variety	.004	.799*	-.179	-.006	.073	-.042
28	Follow Father	-.079	.037	-.110	-.266	.745*	.020

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR BRAZIL 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.9077**	.0846	.1818	.2389	.2524	-.1231
12	-.0177	.9236**	.0913	.0223	-.3652	-.0662
13	-.1713	-.1341	.9673**	.0812	-.0915	.0431
14	.2325	-.3216	-.1157	.2838	-.8574*	.1180
15	-.1358	-.1056	-.0154	.1489	-.0794	-.9705**
16	-.2720	.0846	-.0981	.9128**	.2306	.1515

---

* = Similar factors

** = Identical factors

Table 7

ITEM COMPARISON FOR BRAZIL 14 YEAR OLDS - STAGES I AND III

OCCUPATIONAL VALUES (Factor Loadings)

BRAZIL	VII		VIII		IX		A.		X		XI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	12	12	13	13	14	15[a]	15	16[a]	16	14
14 Altruism	.62	.72										
15 Esthetics	-.62	(-.14)*			-.40	-.66						
16 Independence											.88	.84
17 Management									.91	.92**		
18 Success					.84	.78						
19 Self-Satis.	.59	.68							-.45	(-.17)		
20 Intell. Stim.			.72	.75								
21 Creativity	(-.28)	-.40	.65	.58								
22 Security			-.43	(-.25)			(-.13)	-.71**				
23 Prestige	-.80	-.68										
24 Eco. Returns	-.40	-.66			.45	(.09)						
25 Surroundings	.64	.47										
26 Associates					(-.34)	-.53	.68	(.13)			(.27)	.43
27 Variety			.73	.80								
28 Follow Father							-.79	-.75				

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were used in the unit weighted scores, but load significantly in one country.

** -- The signs in this factor have been reversed as the factors are mirror images. See text for further details.

Table 8

STAGE III

VIEWS OF LIFE

BRAZIL - 14 Year Olds	Loadings Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
Item								
43 Locus of Control(Internal/external)	-.026	.076	.243	.539*	-.017	.064	.081	.085
44 Academic Locus of Control	.005	.045	.052	-.028	-.198	-.015	.072	-.041
45 Action-Inaction	-.133	-.092	.227	.100	.202	-.084	.006	.033
46 Immediate - Delayed Action	.374	.064	.477*	.004	-.034	.067	-.149	.041
47 Rate of Action	.501*	.057	-.094	-.044	-.172	-.089	.035	.200
48 Intrinsic-Extrinsic Work Motiv.	-.586*	.245	-.001	.136	-.053	-.053	-.125	.046
49 Task Achievement-Interpersonal Relations	.021	.015	.010	.081	.017	.014	-.031	.383*
50 Competition - Cooperation	.456*	.007	-.122	.096	.057	.351	-.206	-.171
51 Independent - Obedient	-.036	.012	.122	.071	-.524*	.105	.293	-.085
52 Earned - Bestowed Status	-.226	.060	.447*	-.135	-.231	-.049	.067	-.182
53 Confront - Avoid	-.065	-.048	.483*	.105	.003	-.038	.158	.021
54 Self- Other Initiation	-.044	.566*	.079	.015	-.044	.140	.068	.009
55 Self- Other Solver	.041	.013	-.042	.023	-.031	.542*	.099	.116
56 Self - Joint Implementation	.031	.158	-.039	-.187	-.046	.193	-.060	.358
58 Instrument - Fantasy	-.008	.473*	.002	.363	.094	-.201	.046	-.154
59 Emotional Control/Expressivity	-.117	-.018	-.201	-.034	.393	.107	-.071	.016
60 Activity /Passivity under Stress	.038	.212	.176	.053	-.076	.100	.574*	-.109
61 Positive /Negative Self- Esteem	-.047	.512*	-.124	.034	.045	-.056	.060	.208
62 View of Life (Complex/Simple)	.108	-.094	.118	-.426*	.272	-.024	.052	-.005

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

BRAZIL - 14 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	.776*	-.194
2 Passive Coping	.815*	.231
3 Active Defensive	-.223	.758*
4 Passive Defensive	.271	.785*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

BRAZIL - 14 Year Olds	Factor Loading
Sub-Scores	Factor 25
37 Task Achievement	.479*
38 Authority	.712*
39 Aggression	.783*
40 Interpersonal Relations	.584*
41 Anxiety	.409*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

BRAZIL - 14 Year Olds

	COMMON FACTORS			
New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1	4	Copes with Aggression
II	C(SC)	2	2	Copes with Anxiety
III	C(SC)	3	1	Copes with Task Achievement
IV	C(SC)	4	5	Copes with Authority
V	C(SC)	5 & 7	3	Copes with Interpersonal Relations
VI	C(SC)	6	8	Neutral Affect toward Task Achievement
VII	OVAL	11	11	Values Altruism, Surroundings, and Self-Satisfaction; does not value Prestige, Economic Returns (Esthetics or Creativity)*
VIII	OVAL	12	12	Values Intellectual Stimulation, Creativity and Variety; (does not value Security).
IX	OVAL	13	13	Values Success, not Esthetics; (Values Economic Returns, not Associates)
A	OVAL	14	15	Does not value Following Father's occupation (or Security; values Associates)
X	OVAL	15	16	Values Management; (does not value Self-Satisfaction)
XI	OVAL	16	14	Values Independence (and Associates)
	UNIQUE FACTORS			
	C(SC)	8	-	Positive Attitude toward Authority and Interpersonal Relations
	C(SC)	9	-	Positive Affect toward Authority
	C(SC)	10	-	Positive Affect toward Interpersonal Relations, lack of Negative Affect toward Task Achievement
	C(SC)	-	6	Copes effectively with Aggression, with Neutral, but not Positive Affect
	C(SC)	-	7	Active confronting of Authority
	C(SC)	-	9	Depressive Affect about problems of Aggression, Authority with Interpersonal Relations; Positive Attitude toward Interpersonal Relations; lack of Hostile Affect toward Authority.
	C(SC)	-	10	Neutral, Non-Hostile Affect toward Anxiety, and lack of Hostile Affect toward Task Achievement
	C(VOL)	-	17	Prefers fast Rate of Action, Extrinsically Motivated, Competitive
	C(VOL)	-	18	Self-Initiator, Satisfaction gained from actual accomplishments, Positive Self-Esteem
	C(VOL)	-	19	Prefers Immediate Action and Earned Status; Confronts Problems
	C(VOL)	-	20	Views Life as Simple; Internal Control
	C(VOL)	-	21	Interdependent
	C(VOL)	-	22	Self-Solver
	C(VOL)	-	23	Active under Stress
	C(VOL)	-	24	Concern with Task Achievement
	C(SAI)	17	-	Copes effectively
	C(SAI)	18	-	Shows defensive behavior
	C(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

BRAZIL - 14 Year Olds - STAGE I

			Probability Level
[i]C(SC)1-I	F< M**	Copes effectively with Aggression via Stance & Engagement with positive, not negative Affect	p <.001
[i]C(SC)2-II	F< M	Copes effectively with Anxiety via Stance & Engagement with neutral, not negative Affect	p <.001
[i]C(SC)4-IV	F< M	Copes effectively with Authority via Stance with neutral, not negative Affect	p <.001
C(SC)5	F< M	Copes effectively with Interpersonal Relations with neutral, not negative Affect	p <.003
C(SC)7	F< M	Copes with Interpersonal Relations via Stance & Engagement	p <.002
C(SC)9	F > M	Positive Affect toward Authority	p <.043
OVAL 13-IX	F< M	Values Success & Economic Returns; doesn't value Esthetics	p <.008
[s]OVAL 14-A	F< M	Doesn't value Associates; Follow Father	p <.001

---

* 8/18 (44[illegible]f the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[s] = The sex difference on this factor is similar to one in the other sample

Table 13

SIGNIFICANT SEX DIFFERENCES*

BRAZIL - 14 Year Olds - Stage III

			Probability Level
[i]C(SC)2-II	F < M**	Copes effectively with Anxiety with neutral, not depressive Affect.	$\underline{p} < .001$
[i]C(SC)4-I	F < M	Copes effectively with Aggression	$\underline{p} < .041$
[i]C(SC)5-IV	F < M	Copes effectively with Authority with neutral & depressive, not hostile Affect toward Authority & with no depresive Affect toward Interpersonal Relations.	$\underline{p} < .001$
C(SC)7	F < M	Copes with Authority	$\underline{p} < .033$
C(SC)9	F > M	Depressive & positive Affect toward Interpersonal Relations; Depressive, not hostile Affect toward Authority; and depressive Affect toward Aggression.	$\underline{p} < .029$
OVAL 11-VI	F > M	Values Altruism, Self-Satisfaction, & Surroundings; doesn't value Creativity, Prestige, & Economic Returns	$\underline{p} < .001$
OVAL 14-XI	F > M	Values Independence & Associates	$\underline{p} < .028$
[s]OVAL 15-A	F < M	Values Security & Follows Father	$\underline{p} < .002$
[n]C(VOL)18	F < M	Prefers Self-Initiation of Action; gains satisfaction from actual accomplishments; and has positive Self-Esteem	$\underline{p} < .006$
[n]C(SAI)25	F > M	Copes effectively	$\underline{p} < .021$

---

* 10/25 (40%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i]= An identical sex difference in both samples (Stages I and III)

[s]= The sex difference on this factor is similar to one in the other sample

[n]= No comparable instrument in the other sample

Table 14

SIGNIFICANT SES DIFFERENCES*

BRAZIL - 14 Year Olds - STAGE I

			Probability Level
[i]C(SC)1-I	L < M**	Copes effectively with Aggression via Stance & Engagement with positive, not negative Affect	$p < .036$
C(SC)2-II	L > M	Copes effectively with Anxiety via Stance & Engagement with neutral, not negative Affect	$p < .01$
C(SC)6-VI	L < M	Positive or Negative, not Neutral Affect toward Task Achievement	$p < .003$
C(SC)8	L > M	Positive Attitude toward Authority & Interpersonal Relations	$p < .009$
OVAL 14-A	L > M	Values Associates; doesn't Follow Father	$p < .039$
[i]OVAL 16-XI	L < M	Values Independence	$p < .005$
[n]C(SAI) 18	L > M	Shows defensive Behavior	$p < .001$

---

* 7/18 (38%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 15

SIGNIFICANT SES DIFFERENCES*

BRAZIL - 14 Year Olds - Stage III

			Probability Level
[i]C(SC)4-I	L > M**	Copes effectively with Aggression without Depressive Affect	p < .017
C(SC)8-VI	L < M	Neutral, not positive or depressive Affect toward Task Achievement	p < .025
C(SC)9	L > M	Depressive & positive Affect toward Interpersonal Relations; Depressive, not hostile Affect toward Authority and depressive Affect toward Aggression	p < .016
[i]OVAL 14-XI	L < M	Values Independence & Associates	p < .006
[n]C(VOL)19	L < M	Prefers Immediate Action, Earned Status, Confront Problems	p < .006
[n]C(VOL)20	L < M	Internal Locus Of Control	p < .029
[n]C(VOL)21	L < M	Prefers independent action	p < .001
[n]C(VOL)22	L > M	Prefers to solve own problems	p < .001
[n]C(VOL)23	L < M	Active (not Passive) under Stress	p < .006
[n]C(SAI)25	L > M	Copes effectively	p < .025

---

* 10/25 (40%) of the significance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, and Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 16a

Stage I

REGRESSION ANALYSIS

BRAZIL - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
- [n]C(SAI)18	8.65	.003	.16	.02	.02
C(SC) 7	5.91	.016	.20	.04	.02
- C(SC) 8	4.33	.038	.23	.05	.01
C(SC) 4-IV	6.12	.014	.26	.07	.02
OVAL 14-A	3.80	.052	.28	.08	.01
[i]ED ASP	11.78	.001	.33	.11	.03
RAVEN	11.41	.001	.37	.14	.03
BRS	29.28	.001	.46	.21	.07

Additional Explanatory Variables:

	pr	p	r	p
C(SC) 5-V			.12	.05

---

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 14 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

[n]-C(SAI)18* = Does not report Defensive Behavior

C(SC)7 = Copes with Interpersonal Relations via Stance and Engagement.

-C(SC)8* = Does not show positive attitude toward Authority and Interpersonal Relations

C(SC)4-IV = Copes effectively with Authority

OVAL 14-A = Values Associates; does not value Following Father's occupation

[i]ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)5-V = Copes effectively with Interpersonal Relations with neutral, not negative Affect.

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a

Stage III

REGRESSION ANALYSIS

BRAZIL - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(VOL)21	17.71	.001	.30	.09	.09
[n]-C(VOL)17	11.63	.001	.38	.15	.06
-C(SC)4-I	9.75	.002	.44	.14	.04
C(SC)6	7.18	.01	.47	.22	.03
OVAL 14-XI	5.82	.02	.50	.25	.02
RAVEN	.42	NS			
BRS	1.12	NS			

Additional Explanatory Variables:

	pr	p	r	p
C(SC)8-VI			.15	.05
[n]C(VOL)20			.17	.05
[i]ED ASP			.16	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 17b

STAGE III

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 14 Year Olds CRITERION: Reading Achievement

^{n}C(VOL)21 - Interdependent

- ^{n}C(VOL)17 *= Deliberate, intrinsically motivated and cooperative

- C(SC)4-I = Does not confront Aggression actively

C(SC)6 = Copes with Aggression neutrally, non-hostilely

OVAL 14-X= Values Independence and Associates

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)8-VI = Neutral, not depressive or positive Affect toward Task Achievement.

^{n}C(VOL)20 = In control of life: although simple View of Life

^{i}ED ASP = Educational Aspiration

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a

Stage I

REGRESSION ANALYSIS

BRAZIL - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[i]C(SC)4-IV	5.29	.022	.12	.02	.02
[i]OVAL 16-XI	4.99	.026	.17	.03	.01
ED ASP	10.81	.001	.24	.06	.03
[i]RAVEN	5.32	.022	.27	.07	.01
BRS	3.92	.048	.29	.08	.01

Additional Explanatory Variables:

	pr	p	r	p

---

[i] = An identical predictor or explanatory factor across samples

Table 18b

Stage I

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 14 Year Olds — CRITERION: Math Achievement

[i]C(SC)4-IV = Copes effectively with Authority

[i]OVAL 16-XI= Values Independence

ED ASP = Educational Aspiration

[i]RAVEN = RAVEN Progressive Matrices

BRS = Behavior Rating Scale

---

[i] = An identical predictor or explanatory factor across samples

Table 19a

Stage III

REGRESSION ANALYSIS

BRAZIL - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(VOL)22	3.31	.07	.13	.02	.02
-[i]C(SC)5-IV	2.51	.12	.18	.03	.01
C(SC)7	7.27	.01	.26	.07	.04
- OVAL 15-A	4.85	.03	.31	.09	.02
OVAL 16-X	4.77	.03	.34	.12	.02
OVAL 13-IX	4.54	.03	.38	.14	.02
- ED ASP	5.49	.02	.41	.17	.03
[i]RAVEN	7.24	.01	.45	.20	.03
BRS	2.46	NS			

Additional Explanatory Variables:

	pr	p	r	p
[i]OVAL 14-XI	.17	.03		

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:

[n]C(VOL)22 = Self solver of problems

[i]-C(SC)5-IV*= Copes effectively with Authority with Depressive or Neutral, not Hostile Affect; Depressive Affect toward Interpersonal Relations.

C(SC)7 = Active confronting of Authority.

-OVAL 15-A* = Does not value Security or Following Father's occupation.

OVAL 16-X = Does not value Management

OVAL 13-IX = Values Success not Esthetics or Associates

-ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]OVAL 14-XI = Values Independence and Associates

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a

Stage I

REGRESSION ANALYSIS

BRAZIL - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
OVAL 14-A	6.23	.013	.13	.02	.02
RAVEN	10.92	.001	.22	.05	.03
[1] BRS	188.37	.001	.62	.39	.34

Additional Explanatory Variables:

	pr	p	r	p

---

[1] = An identical predictor or explanatory factor across samples

Table 20b

Stage I

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 14 Year Olds CRITERION: Grade Point Average

OVAL 14-A = Values Associates; does not value Following Father's occupation

RAVEN = RAVEN Progressive Matrices

[i] BRS = Behavior Rating Scales

---

[i] = An identical predictor or explanatory factor across samples.

Table 21a

Stage III

REGRESSION ANALYSIS

BRAZIL - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)7	5.69	.02	.18	.03	.03
OVAL 11-VII	5.26	.02	.24	.06	.03
RAVEN	2.68	.10	.26	.07	.01
[i]BRS	29.44	.001	.45	.20	.13

Additional Explanatory Variables:

pr	p	r	p

---

[i] = An identical predictor or explanatory factor across samples.

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

BRAZIL - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)7 = Active confronting of Authority

OVAL 11-VII = Values Altruism, Self-Satisfaction and Surroundings; does not value Creativity, Prestige or Economic Returns.

RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scale

---

[i] = An identical predictor or explanatory factor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

BRAZIL - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	3.0%	1.4%	3.0%
Coping/Motivation (unique)	8.4%	5.1%	1.7%
Total	14.0%	7.3%	4.8%

BRAZIL - 14 Year Olds - Stage III

Aptitude (unique)	1.0%	3.3%	1.4%
Coping/Motivation (unique)	22.5%	18.2%	6.5%
Total	24.8%	20.0%	7.2%

Table 23

CORRELATIONS AMONG THE CRITERIA

BRAZIL - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.31		.20
GPA	.29		

BRAZIL - 14 Year Olds - Stage III

Reading			
Math	.15		.46
GPA	NS		

MEXICO 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Mexican 10 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Mexican students. Sex and socioeconomic status differences are then described. Finally, the regression analyses are delineated in order to show the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were five general factors corresponding to coping with aggression, authority, anxiety, interpersonal relations, and task achievement. Unit weights were constructed using those variables having a factor loading ($\geq .40$). For example, factor 1 consisted of all five variables dealing with coping with anxiety. The remaining factors also tended to have variable loadings grouped according to sub-aspects of the behavioral areas.

As these factors appeared to be yielding similar results, a comparison of the five principal factors was made (see Table 3). These factors were highly similar, with respective percentages of common variables across stages of 100%, 100%, 75%, 80%, and 60%. Some of the variables which did not load higher than .40 on both stages still showed a similar direction. While the program RELATE could not be run due to different numbers of variables in the two stages, these factors were considered "identical," and appeared to indicate a stable "Mexican" construct system at age 10 that defined coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that three of the six factors were "similar," having a cosine of .8 or better (interpreted similar to a correlation coefficient). Table 7 depicts the item comparison of these three factors across the two stages. The results of this comparison indicated some similarity in constructs across time for Mexican 10 year old students.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: Positive coping and ineffective or defensive responding. Curiously, the variable of passive defensive behavior, normally a negative measure, also loaded with the coping variables such that some of the students who reported effective or positive coping, also reported some use of passive defensive behavior in dealing with problems. (This pattern appeared in the Italian sample, as well.)

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reported effective coping across all but one of the behavioral areas. The anxiety variable was loaded in the same direction, but not significantly.

SUMMARY OF FACTOR COMPARISON ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)7 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content, described earlier. The five major factors were very similar and were referred to as "identical" factors. These factors received a Roman numeral designation, as indicated in Table 11.

The Occupational Values instrument was compared by the RELATE factor comparison method. Three of these factors were called "similar" (RELATE value of .80 to .90) and they received an alphabetic designation. For example, similar factor "A" consisted of original factors OVAL 11 in both samples. The unique factors in each sample, having no comparable factor in the other sample, were listed below these.

In the Mexican 10 year old sample, the five primary Sentence Completion factors were identical across stages. While there were no identical factors in the Occupational Values comparison, three of the six comparisons were similar. These results indicated that the factor structures in the two samples were similar in many respects, and provided evidence that the coping and motivation patterns represented by these factors may remain stable in the Mexican 10 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males tended to cope more effectively with anxiety and with task achievement. There were many sex differences on the Occupational Values factors. Males placed greater value on prestige, economic returns, intellectual stimulation, creativity, and following father's occupation. Females, on the other hand, more highly valued altruism, self-satisfaction, pleasant surroundings, associates, esthetics, management, and variety.

In Stage III, females coped more effectively with aggression, and expressed less hostile affect toward both interpersonal relations and authority. In a work setting, males placed greater value on management, prestige, economic returns, creativity, and following father's occupation. Females, however, more highly valued altruism, self-satisfaction, pleasant surroundings, associates, intellectual stimulation, success, and security.

The pattern of sex differences in Occupational Values was relatively consistent across stages in these Mexican 10 year old samples. Males tended to place greater value on managerial power and creativity, as well as extrinsic concerns such as prestige and financial gain. Females, on the other hand, tended to value work which offered self-satisfaction and a chance to help others, as well as pleasant surroundings and friendly associates.

SES DIFFERENCES

There were many social class differences in both samples of Mexican 10 year olds. Stage I differences are listed in Table 14. Middle-class students coped more effectively with authority and expressed a more positive attitude toward both authority and interpersonal relations than did the lower class. In work, the middle class more highly valued altruism, self-satisfaction, surroundings, success, security, independence, and following father's occupation. Lower-class students, on the other hand, placed greater value on prestige, economic returns, esthetics, management, and variety. In addition, lower-class students reported more defensive behavior on the SAI than did the middle class.

In Stage III (Table 15), middle-class students coped more effectively in the behavior areas of task achievement, interpersonal relations, authority, and anxiety. The middle class also tended to express less hostile or depressive affect toward the various behavior areas than did the lower class. In work, middle-class students placed greater value on creativity, esthetics, and independence, whereas the lower class valued surroudings and associates more highly.

Despite many social class differences in either stage, there was only one common to both samples of Mexican 10 year olds. Middle-class students consistently coped more effectively with authority than did the lower class.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. In the regression equation, coping with authority was a negative predictor. However, there was a suppression effect involved. Coping with authority was actually positively correlated with reading achievement. This variable apparently shared variance with other variables in the regression equation, however, in such a way that the remaining association of coping with authority to reading achievement was negative.

In a work setting, better readers in Stage I placed greater value on altruism, self-satisfaction, and surroundings in contrast to prestige and economic returns. They did not value variety or managerial power. (There was a suppression effect in OVAL 12, probably due to sharing variance associated with independence in OVAL 15. Our best interpretation of this is that the shared variance, and this independence, was not associated with reading achievement.) Good readers valued intellectual stimulation and creativity, but not surroundings and associates on a dimension of intellectual and creative challenge vs. pleasant working condidtions. In addition, better readers were rated higher by their peers on the BRS, had higher aptitude scores, and higher aspirations for both career and education.

There were many predictors of reading achievement in Stage III (Tables 17a and 17b). Good readers coped well in interpersonal relations and with anxiety. C(SC)6 was not significant, but shared variance with C(SC)4, coping with authority, causing this latter factor to show up negatively in the equation. Since the simple correlation of C(SC)4 to reading achievement was .23, this suppression effect can most accurately be resolved by viewing C(SC)4, coping with authority, as a positive predictor of achievement in reading. Good readers were also rated highly by their peers on the BRS.

Another suppression affect occurred in this sample between OVAL 12 and 16. Although OVAL 16 was a negative predictor, it actually had a very low, simple correlation of .03 with reading achievement. The variable of creativity was positively correlated with reading, while variety was negatively correlated. It appears that the portion of creativity associated with task achievement was shared between OVAL 12 and OVAL 16, however, so that this positive relationship was accounted for in OVAL 12. This resulted in a suppression effect in OVAL 16, allowing variety to emerge as dominant. In sum, it appeared that better readers more highly valued creativity, but valued surroundings, associates, and variety less than poor readers. In addition, better readers placed greater value on altruism and self-satisfaction, and less on management, prestige, economic returns, success, and security. Finally, good readers also had higher aptitude scores and higher occupational and educational aspirations.

There were two other correlates of reading achievement in Stage III, coping with task achievement, and positive attitude toward both task achievement and authority.

Across the two stages, good readers coped effectively with authority and were rated highly by their peers on the BRS. In work, these students valued altruism and self-satisfaction as opposed to prestige and economic returns. They also valued creativity rather than surroundings or associates. In addition, better readers consistently had higher aptitude scores and higher aspirations for both career and education.

Math Achievement

Predictors of math achievement in Stage I are listed in Tables 18a and 18b. Students who did well in math tended not to cope with task achievement by confronting the problem and, in fact, were negative in affect toward task achievement. They did express positive attitudes toward authority and interpersonal relations, however. In work, good math students valued altruism, self-satisfaction, and surroundings in contrast to prestige and economic returns. Aptitude was not a significant predictor. They were rated highly by their peers on the BRS.

There were several other factors associated with math achievement in Stage I. Coping with anxiety was negatively correlated with math achievement. Three Occupational Values factors were associated with success in math: valuing following father's occupation, but not esthetics; not valuing variety; valuing intellectual stimulation and creativity, but not independence, surroundings, or associates. In addition, educational and occupational aspirations were related to math achievement in the Stage I sample of Mexican 10 year olds.

In Stage III (Tables 19a and 19b), good math students coped well with interpersonal relations, but at the same time expressed more hostile affect than poorer students toward both interpersonal relations and authority. They reported themselves as coping well, on the SAI, and were rated highly by their peers on the BRS. In work, good math students placed less value on success and security than poorer students. They valued creativity as opposed to surroundings and associates. There was a suppression effect in OVAL 16 which showed up as a negative predictor in the equation. The simple correlation of this factor with math achievement was .03. Creativity had a positive simple correlation of .24, while variety negatively correlated at -.22. It appears that the suppression involved shared variance on the creativity variable in OVAL 12 and OVAL 16. Thus, the positive contribution of creativity was accounted for in OVAL 12. OVAL 16 reflects the fact, then, that good math students placed less value on variety than poor students. In addition, better students valued altruism and self-satisfaction, rather than management, prestige, and economic returns. Aptitude and educational aspiration were also predictive in this sample. There were two other correlates of math achievement; coping with authority and occupational aspiration.

A comparison of the two stages showed that Mexican 10 year olds who were good in math consistently had relatively high educational and occupational aspirations. In work, these students valued creativity as opposed to surroundings and associates. Also, they valued altruism and self-satisfaction, rather than prestige and economic returns. Finally, better math students were rated higher by their peers on the Behavior Rating Scale.

Grade Point Average

Predictors of GPA for Stage I are listed in Tables 20a and 20b. On the self-report measure (SAI), students with higher grades reported better overall coping and less defensive behavior than poorer students. They were also rated higher by their peers on the BRS. Many Occupational Values factors were also predictive of GPA in this sample. Successful students valued altruism, self-satisfaction, and surroundings rather than prestige and economic returns. They valued variety less than poorer students. They valued independence as opposed to management. At the same time, they valued intellectual stimulation and creativity in contrast to independence, surroundings, and associates. (Note that a variable such as independence may hold opposite weights in combination with different variables which compose factors representing different concept structures.) Aptitude and educational aspiration were also predictive. In addition, valuing success and security, and occupational aspirations were correlated with GPA in this sample.

There were numerous predictors of GPA in Stage III (Tables 21a and 21b). Successful students coped effectively with both interpersonal relations and authority. It is difficult to interpret C(SC)6, depressive affect toward interpersonal relations, authority, and aggression, since there was a suppression effect involved. This factor turned up as a positive predictor in the equation even though its simple correlation with the criterion was -.14. The suppression was apparently with C(SC)2 and C(SC)3, since C(SC)6 correlated with each of these in a negative direction larger than -.5. The former two factors, coping with interpersonal relations and coping with authority, "suppressed" the primary negative correlation of C(SC)6 with the criterion, GPA. Apparently, there was some remaining variance shared between GPA and C(SC)6, so that some aspect of depressive affect did relate to success in GPA, despite the primary negative correlation between depressive affect and GPA.

Students with higher GPA reported themselves as better overall copers (SAI) and were rated higher by their peers on the BRS. They expressed more positive affect about anxiety-arousing issues than less successful students. In work, these students valued creativity rather than surroundings and associates. They valued variety less than poorer students (see math achievement, Stage III, for discussion of suppression involving creativity in OVAL 12 and OVAL 16, which was also present in this equation). In addition, good students valued intellectual stimulation as opposed to following father's occupation. Aptitude was also a significant predictor of GPA in this sample.

There were several other factors correlated with GPA in Stage III. These included coping with task achievement, anxiety, and aggression, and lack of hostile affect toward authority. Valuing altruism and self-satisfaction but not management, prestige, or economic returns was also related to GPA. Occupational and educational aspirations were the final correlates.

A comparison across stages indicated that successful students consistently had higher aptitude scores and higher aspirations for both career and education. They were also rated higher than less successful students by their peers on the Behavior Rating Scale. Two Occupational Values factors were also predictive in both stages. Students with higher GPA valued creativity rather than surroundings and associates; they also valued altruism and self-satisfaction, in contrast to prestige and economic returns.

PERCENTAGE OF VARIANCE

In order to assess the practical implication of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivational variables. The unique variance of both aptitude and coping/motivation variables was that increment in the "explained" variance, beyond that accounted for by other variables.

Aptitude was an important predictor of reading in both stages, uniquely accounting for 16.9% of the variance in Stage I and 9.4% in Stage III. In math, aptitude accounted for 11.7% in Stage III, but surprisingly accounted for only 0.5% in Stage I. An average of 9.1% of the variance in GPA in each stage was uniquely accounted for by aptitude.

Coping/motivational variables were also important, often uniquely accounting for more of the variance than aptitude. Although accounting uniquely for only 4.6% of reading achievement in Stage I, these variables uniquely accounted for 14.2% of the variance in Stage III. In math, coping/motivation uniquely accounted for an average of 7.8%, much more than aptitude in Stage I. These variables uniquely accounted for 9.2% of the variance in GPA in Stage I and 14.4% in Stage III, more than aptitude in each stage.

What is more, some properties that reflected both aptitude and coping substantially increased the total variance explained, on all achievement criteria. This gave added weight to the explanatory power and the practical usefulness of the coping/motivation measures. This was especially true in Stage III, where 34% to 49% of the variance was explained by the combined effects of aptitude and the coping/motivation factors.

In sum, the coping/motivation factors were significant and useful predictors across all criteria and stages for Mexican 10 year olds, indicating that their success in school was contingent upon attitudinal qualities and coping skills in many aspects of life.

Table 1

STAGE I

SENTENCE COMPLETION

	Loadings									
MEXICO - 10 Year Olds	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Attitude - Authority	.006	-.027	.079	.108	.011	-.115	.670*	.111	.045	-.109
40 Att. - Interpersonal Relations	.061	.040	-.126	.048	.011	.195	.611*	-.050	.235	.114
41 Att. - Task Achievement	.018	.014	.060	.105	.028	-.046	.308	.039	-.062	.680*
43 Aggression - Stance	-.003	.898*	-.000	.165	-.039	.099	.105	.103	-.140	-.008
44 Aggression - Engagement	-.085	.826*	-.052	-.007	-.160	-.037	.143	.061	-.299	-.037
45 Aggression - Coping Eff.	.107	.896*	.101	.171	.059	.007	-.046	.032	.199	.016
46 Aggression - Neg. Affect	-.189	-.680	-.145	-.216	-.141	.026	.168	.113	-.517*	-.075
47 Aggression - Pos. Affect	.189	.680*	.145	.216	.141	-.026	-.168	-.113	.517*	.075
48 Authority - Stance	.038	.036	.043	.819*	.034	.057	.269	.091	.002	-.006
49 Authority - Engagement	.097	.014	-.051	.355	.014	.050	.121	.121	.499*	-.185
50 Authority - Coping Eff.	.086	.132	.136	.936*	.040	.014	.131	.048	.032	.004
51 Authority - Neg. Affect	-.168	-.161	-.196	-.879*	.000	.021	.112	-.025	-.036	-.008
52 Authority - Neutral Aff.	.162	.143	.165	.885*	-.031	-.013	-.152	.049	.050	-.006
53 Authority - Pos. Affect	.035	.133	.237	-.131	.257	-.060	.351	-.205	-.123	.121
54 Anxiety - Stance	.898*	.038	.012	.117	.048	.071	.047	.067	-.055	.072
55 Anxiety - Engagement	.793*	-.002	.047	.054	.113	.090	.050	.011	-.131	.120
56 Anxiety - Coping Eff.	.916*	-.003	.037	.047	.035	.005	.013	.038	.046	-.009
57 Anxiety - Neg. Affect	-.939*	-.063	-.073	-.078	-.042	-.001	.019	-.063	-.056	.085
58 Anxiety - Neutral Aff.	.939*	.063	.073	.078	.042	.001	-.019	.063	.056	-.085

STAGE I

SENTENCE COMPLETION

MEXICO - 10 Year Olds (continued)	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	.103	-.020	.130	.028	.035	.857*	-.055	.015	-.013	.025
60 IPR - Engagement	.066	.063	.265	.004	.067	.806*	.063	.095	-.090	-.076
61 IPR - Coping Eff.	.068	.103	.791*	.214	-.001	.401*	.041	.110	.073	.008
62 IPR - Negative Affect	-.106	-.039	-.932*	-.189	.029	-.075	-.023	-.119	-.089	-.013
63 IPR - Neutral Affect	.113	.041	.921*	.201	.002	.098	-.012	.111	-.014	-.000
64 IPR - Positive Affect	-.032	-.009	.088	-.056	-.164	-.114	.182	.047	.530*	.070
65 Task Achievement - Stance	.168	-.010	-.006	.008	.820*	.055	.051	.402*	-.017	-.049
66 Task Ach. - Engagement	.077	-.015	-.046	.014	.849*	.029	-.028	-.033	-.057	.110
67 Task Ach. - Coping Eff.	.193	.015	.067	.081	.707*	.071	.140	.552*	-.027	-.128
68 Task Ach. - Neg. Affect	-.138	-.054	-.192	-.171	-.184	-.055	-.073	-.866*	-.035	.023
69 Task Ach. - Neutral Aff.	.124	.061	.156	.082	.174	.053	-.077	.861*	.068	.320
70 Task Ach. - Pos. Affect	.007	-.023	.045	.163	-.011	-.005	.317	-.141	-.080	-.747

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* These variables had a factor loading of .40 or better and were used to construct a unit weighte score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

MEXICO - 10 Year Olds	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
64 Task Achievement-Attitude	.016	-.040	-.138	.053	-.073	-.155	.062	.646*	-.095	.024
65 T.A. - Stance	.869*	.020	.052	.048	.079	-.127	.034	-.055	.077	-.075
66 T.A. - Engagement	.809*	.059	.040	.002	-.045	.116	-.089	.129	-.045	.091
67 T.A. - Aid/Advice	.820*	.056	.070	-.010	-.033	.073	-.059	.096	-.079	.018
68 T.A. - Coping Effect	.847*	.087	.115	.031	.091	-.030	.107	.103	.032	-.106
69 T.A. - Hostile Affect	-.401*	-.088	-.063	-.048	-.014	-.042	-.262	-.120	-.554*	.274
70 T.A. - Depressive Aff.	-.534*	.076	-.121	-.099	-.064	.275	.256	.016	.126	-.175
71 T.A. - Neutral Aff.	.789*	-.034	.078	.148	.003	-.101	-.039	-.111	.164	-.008
72 T.A. - Positive Aff.	-.339	.061	.100	-.098	.110	-.163	.005	.353	.136	-.045
73 Interpersonal Relations Attitude	-.109	.231	.020	.053	.067	.222	-.011	.306	.258	-.066
74 I.R. - Stance	.043	.855*	.153	.002	.130	-.103	-.061	.029	.072	-.078
75 I.R. - Engagement	.013	.932*	.162	.045	.061	-.008	-.002	.036	.007	-.000
76 I.R. - Aid/Advice	.012	.931*	.161	.037	.054	.004	.009	.032	.017	-.005
77 I.R. - Coping Effect	.093	.842*	.176	.042	.088	-.204	-.310	.099	.045	-.022
78 I.R. - Hostile Affect	-.079	-.339	-.122	-.028	-.017	-.064	.753*	-.012	.014	-.097
79 I.R. - Depressive Aff.	-.062	-.228	-.015	-.118	.045	.673*	.037	-.052	.033	.076
80 I.R. - Neutral Aff.	.113	.454*	.117	.106	-.015	-.438*	-.624*	.046	-.067	.014
81 I.R. - Positive Aff.	-.032	-.088	-.042	.022	-.034	.045	-.204	.005	.274	.097

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

MEXICO - 10 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.166	.198	.184	.040	-.002	.022	-.103	.514*	-.098	.091
83 Auth. - Stance	.074	.212	.858*	.148	.095	-.138	-.053	-.035	.004	-.051
84 Auth. - Engagement	.082	.134	.807*	.084	.034	.249	-.039	.220	-.088	.034
85 Auth. - Aid/Advice	.142	.163	.821*	.109	.091	.209	.001	.195	-.086	.015
86 Auth. - Coping Eff.	.095	.158	.940*	.122	.095	-.101	-.107	-.014	.044	-.009
87 Auth. - Hostile Aff.	-.146	.021	-.306	-.054	-.277	-.162	.429*	.229	-.203	.147
88 Auth. - Depress. Aff.	-.009	-.069	-.649*	-.045	.015	.492*	-.148	.142	-.032	-.128
89 Auth. - Neutral Aff.	.096	.050	.769*	.073	.123	-.346	-.124	-.266	.151	.027
90 Auth. - Positive Aff.	0	0	0	0	0	0	0	0	0	0
91 Anxiety - Attitude	.192	.020	.015	.032	.105	.091	.052	.280	.106	.141
92 Anx. - Stance	.014	.042	.180	.834*	.194	.011	.043	-.018	-.073	-.196
93 Anx. - Engagement	.153	.125	-.082	.743*	.095	.204	-.010	.095	.220	.352
94 Anx. - Aid/Advice	.172	.107	-.112	.741*	.071	.230	-.027	-.010	.234	.348
95 Anx. - Coping Eff.	.060	.002	.167	.818*	.093	-.092	-.023	-.099	-.022	-.149
96 Anx. - Hostile Aff.	-.044	-.241	-.041	-.211	.028	.000	.268	-.102	-.712*	.018
97 Anx. - Depressive Aff.	-.033	.105	-.214	-.753*	-.062	.215	-.044	-.071	.336	.205
98 Anx. - Neutral Aff.	.065	.051	.225	.778*	.047	-.206	-.172	.166	.219	.006
99 Anx. - Positive Aff.	-.019	.104	-.038	.085	-.053	.075	.087	-.129	-.032	-.725*

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

MEXICO - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.049	.066	.152	.079	.638*	-.222	.179	-.170	-.134	.318
101 Agg. - Engagement	-.015	.094	.057	.111	.801*	.162	.164	-.229	-.106	214
102 Agg. - Aid/Advice	-.005	.188	.120	.167	.766*	.147	.155	-.201	-.053	.171
103 Agg. - Coping Effect	.050	.103	.124	.121	.862*	-.101	-.068	.163	.073	-.054
104 Agg. - Hostile Aff.	-.068	.024	.035	-.056	-.756*	-.118	.283	-.179	-.024	.308
105 Agg. - Depressive Aff.	-.021	-.028	-.186	.036	-.111	.478*	-.085	-.180	-.170	-.285
106 Agg. - Neutral Aff.	.080	-.007	.075	.034	.815*	-.165	-.230	.284	.124	-.137
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR MEXICO 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

MEXICO	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	5	6	2	4	3	5	1
64 Task Achievement-Attitude										
65 TA - Stance									.82	.87
66 TA - Engagement									.85	.81
*67 TA - Aid/Advice										.82
68 TA - Coping Eff.									.71	.85
**69 TA - Hostile Aff.									(-.18)	-.40
**70 TA - Depress. Aff.										-.53
71 TA - Neutral Aff.									(.17)	.79
72 TA - Positive Aff.										
73 Interpersonal Relations - Attitude										
74 IPR - Stance					.86	.86				
75 IPR - Engagement					.81	.93				
*76 IPR - Aid/Advice						.93				
77 IPR - Coping Eff.					.40	.84				
**78 IPR - Hostile Aff.					(-.08)	(-.34)				
**79 IPR - Depress. Aff.						(-.23)				
80 IPR - Neutral Aff.					(.10)	.45				
81 IPR - Positive Aff.										

MEXICO	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	5	3	2	4	3	5	1
82 Authority - Attitude										
83 Auth. - Stance							.82	.86		
84 Auth. - Engagement							(.36)	.81		
*85 Auth. - Aid/Advice								.82		
86 Auth. - Coping Eff.							.94	.94		
**87 Auth. - Hostile Aff.							-.88	(-.31)		
**88 Auth. - Depress. Aff.								-.65		
89 Auth. - Neutral Aff.							.89	.77		
90 Auth. - Positive Aff.										
*91 Anxiety - Attitude										
92 Anx. - Stance	.90	.83								
93 Anx. - Engagement	.79	.74								
*94 Anx. - Aid/Advice		.74								
95 Anx. - Coping Eff.	.92	.82								
**96 Anx. - Hostile Aff.	-.94	(-.21)								
**97 Anx. - Depressive Aff.		-.75								
98 Anx. - Neutral Aff.	.94	.78								
*99 Anx. - Positive Aff.										

MEXICO	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	5	3	2	4	3	5	1
100 Aggression - Stance			.90	.64						
101 Agg. - Engagement			.83	.80						
*102 Agg. - Aid/Advice				.77						
103 Agg. - Coping Eff.			.90	.86						
**104 Agg. - Hostile Aff.			-.68	-.76						
**105 Agg. - Depress. Aff.				(-.11)						
*106 Agg. - Neutral Aff.			.68	.82						
107 Agg. - Positive Aff.										

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* - This variable was only present in the Stage III instrument.

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable "Negative Affect."

Table 4

STAGE I

OCCUPATIONAL VALUES

MEXICO - 10 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15	Factor 16
Item							
14	Altruism	.696*	-.032	.048	-.008	-.244	-.209
15	Esthetics	-.048	.051	-.369	.681*	-.009	-.251
16	Independence	-.173	.399*	-.320	-.122	.401*	.331
17	Management	-.150	.223	-.057	-.041	-.799*	.135
18	Success	.137	-.111	.736*	.006	-.067	-.055
19	Self-Satisfaction	.505*	.076	.213	-.029	.322	-.086
20	Intellectual Stimulation	.143	-.681*	.071	-.106	.197	.266
21	Creativity	-.089	-.778*	-.128	.087	.145	-.021
22	Security	-.019	.084	.751*	-.073	.093	-.039
23	Prestige	-.753*	-.146	-.120	.191	-.120	-.203
24	Economic Returns	-.788*	.123	.077	.004	-.032	.002
25	Surroundings	.486*	.401*	-.073	.293	.132	.180
26	Associates	.305	.524*	-.136	.015	.35[illegible]	-.095
27	Variety	-.014	-.159	-.107	.094	-.138	.773*
28	Follow Father	.108	.032	-.158	-.797*	-.016	-.363

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

MEXICO - 10 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.686*	.049	.228	.034	-.077	-.251
15 Esthetics	.139	-.241	-.783*	.088	-.170	-.169
16 Independence	-.226	.287	-.654*	-.028	.014	.062
17 Management	-.437*	.025	.174	.323	-.383	-.306
18 Success	.376	-.327	.187	.276	.415*	-.059
19 Self-Satisfaction	.478*	.272	.331	.272	.007	-.138
20 Intellectual Stimulation	.228	-.260	.187	.504*	.031	.229
21 Creativity	.133	-.578*	-.032	-.022	-.182	.431*
22 Security	-.102	.091	.110	-.020	.853*	-.130
23 Prestige	-.586*	-.327	.032	-.153	-.297	-.154
24 Economic Returns	-.784*	-.054	.216	.076	.225	-.153
25 Surroundings	.232	.686*	.036	.117	.128	.022
26 Associates	.148	.767*	-.032	-.083	-.172	.010
27 Variety	-.037	-.056	.074	.131	-.081	.838*
28 Follow Father	-.009	-.159	.156	-.882*	.007	-.039

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR MEXICO 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.866*	.367	.254	.139	-.180	.000
12	-.303	.851*	-.089	-.081	.086	-.403
13	.034	-.105	.411	.348	.801*	-.237
14	.087	-.082	-.629	.718	-.080	-.262
15	.276	.142	-.577	-.315	.558	.400
16	-.272	.323	.172	.489	-.027	.743

---

* Similar factors

Table 7

ITEM COMPARISON FOR MEXICO 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

	A		B		C							
MEXICO	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	12	12	13	15						
14 Altruism	.70	.69										
15 Esthetics												
16 Independence			.40	(.29)*								
17 Management	(-.15)	-.44										
18 Success					.74	.42						
19 Self-Satis.	.51	.48										
20 Intell. Stimulation			-.68	(-.26)								
21 Creativity			-.78	-.58								
22 Security					.75	.85						
23 Prestige	-.75	-.59										
24 Economic Ret.	-.79	-.78										
25 Surroundings	.49	(.23)	.40	.69								
26 Associates			.52	.77								
27 Variety												
28 Follow Father												

---

* These numbers in parentheses are the corresponding loading for each country on those variables tha were not used in the unit weighted scores, but load significantly in one country.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

MEXICO - 10 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	.890*	.091
2 Passive Coping	.893*	.067
3 Active Defensive	.060	.933*
4 Passive Defensive	.526*	.661*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

MEXICO - 10 Year Olds	Factor Loading
Sub-Scores	Factor 17
37 Task Achievement	.684*
38 Authority	.466*
39 Aggression	.508*
40 Interpersonal Relations	.516*
41 Anxiety	.348

---

* These variables had a factor loading of .40 or better and were used to construct [illegible] unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

MEXICO - 10 Year Olds

New Factor Designation	COMMON FACTORS Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1*	4*	Copes with Anxiety
II	C(SC)	2	5	Copes with Aggression
III	C(SC)	6	2	Copes with Interpersonal Relations
IV	C(SC)	4	3	Copes with Authority
V	C(SC)	5	1	Copes with Task Achievement
A	OVAL	11	11	Values Altruism and Self-satisfaction; doesn't value Prestige and Economic Returns. (Values Surroundings; doesn't value Management).
B	OVAL	12	12	Values Surroundings and Associates; doesn't value Creativity. (Values Independence; doesn't value Intellectual Stimulation).
C	OVAL	13	15	Values Success and Security
	UNIQUE FACTORS			
	C(SC)	3	-	Copes effectively with Interpersonal Relations with Neutral, not Negative Affect.
	C(SC)	7	-	Positive attitudes toward Authority and Interpersonal Relations
	C(SC)	8	-	Copes effectively with Task Achievement via Stance with Neutral, not Negative Affect.
	C(SC)	9	-	Positive, not negative Affect toward Aggression; copes with Authority via Engagement; positive Affect toward Interpersonal Relations.
	C(SC)	10	-	Positive attitude toward Task Achievement; lack of positive Affect toward Task Achievement.
	C(SC)	-	6	Depressive, not neutral Affect toward Interpersonal Relations; depressive Affects toward Authority and Aggression.
	C(SC)	-	7	Hostile, not neutral Affect toward Interpersonal Relations; hostile Affect toward Authority.
	C(SC)	-	8	Positive attitudes toward Task Achievement and Authority.
	C(SC)	-	9	Lack of hostile Affect toward Task Achievement and Anxiety.
	C(SC)	-	10	Lack of positive Affect toward Anxiety.
	OVAL	14	-	Values Esthetics; doesn't value Following Father's occupation.
	OVAL	15	-	Values Independence; doesn't value Management.
	OVAL	16	-	Values Variety
	OVAL	-	13	Doesn't value Esthetics and Independence
	OVAL	-	14	Values Intellectual Stimulation; doesn't value Following Father's occupation.
	OVAL	-	16	Values Creativity and Variety

---

* These numbers appear in the Factor Analysis Tables 1, 2, 4, 5.

Table 12

SIGNIFICANT SEX DIFFERENCES*

MEXICO - 10 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with neutral, not negative Affect	p < .001
C(SC)5-V	F < M	Copes effectively with Task Achievement via Stance and Engagement	p < .001
C(SC)8	F < M	Copes effectively with Task Achievement via Stance w/neutral, not negative Affect.	p < .003
[s]OVAL 11-A	F > M	Values Altruism, Self-satisfaction, and Surroundings; doesn't value Prestige and Economic Returns	p < .002
[s]OVAL 12-B	F > M	Values Independence, Surroundings, and Associates; doesn't value Intellectual Stimulation and Creativity.	p < .003
OVAL 14	F > M	Values Esthetics and doesn't Follow Father	p < .001
OVAL 15	F < M	Values Independence; doesn't value Management.	p < .044
OVAL 16	F > M	Values Variety	p < .012

---

* 8/18 (44%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The sex difference on this factor is similar to one in the other sample.

Table 13

SIGNIFICANT SEX DIFFERENCES*

MEXICO - 10 Year Olds -- Stage III			Probability Level
C(SC)5-II	F > M**	Copes effectively with Aggression	p < .051
C(SC)7	F < M	Hostile, not neutral Affect toward Interpersonal Relations; hostile Affect toward Authority.	p < .011
sOVAL 11-A	F > M	Values Altruism and Self-satisfaction; doesn't value Management, Prestige, and Economic Returns.	p < .01
sOVAL 12-B	F > M	Values Surroundings and Associates; doesn't value Creativity.	p < .05
OVAL 14	F > M	Values Intellectual Stimulation; doesn't Follow Father.	p < .001
OVAL 15-C	F > M	Values Success and Security.	p < .048

---

* 6/17 (35%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

s = The sex difference on this factor is similar to one in the other sample.

Table 14

SIGNIFICANT SES DIFFERENCES*

MEXICO - 10 Year Olds - Stage I

			Probability Level
[i]C(SC)4-IV	L < M**	Copes effectively with Authority via Stance with neutral, not negative Affect	$p < .018$
C(SC)7	L < M	Positive attitude toward Authority and Interpersonal Relations	$p < .002$
C(SC)9	L > M	Copes with Authority via Engagement with positive Affect toward Aggression and Interpersonal Relations, without negative Affect toward Aggression.	$p < .033$
OVAL 11-A	L < M	Values Altruism, Self-satisfaction, and Surroundings; doesn't value Prestige and Economic Returns.	$p < .001$
OVAL 13-C	L < M	Values Success and Security.	$p < .001$
OVAL 14	L > M	Values Esthetics; doesn't Follow Father.	$p < .001$
OVAL 15	L < M	Values Independence; doesn't value Management.	$p < .003$
OVAL 16	L > M	Values Variety	$p < .001$
[n]C(SAI)18	L > M	Self-report of defensive coping	$p < .024$

---

* 9/18 (50%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M - Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample.

Table 15

SIGNIFICANT SES DIFFERENCES*

MEXICO - 10 Year Old's - Stage III

			Probability Level
C(SC)1-V	L < M**	Copes effectively with Task Achievement	p < .016
C(SC)2-III	L < M	Copes effectively with Interpersonal Relations	p < .001
[i]C(SC)3-IV	L < M	Copes effectively with Authority	p < .001
C(SC)4-I	L < M	Copes effectively with Anxiety	p < .043
C(SC)6	L > M	Depressive, not neutral Affect toward Interpersonal Relations; depressive Affect toward Authority and Aggression	p < .001
C(SC)7	L > M	Hostile, not neutral Affect toward Interpersonal Relations; hostile Affect toward Authority.	p < .026
C(SC)10	L < M	Positive Affect toward Anxiety	p < .03
OVAL 12-B	L > M	Values Surroundings and Associates; doesn't value Creativity.	p < .053
OVAL 13	L < M	Values Esthetics and Independence.	p < .025

---

* 9/17 (53%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

Table 16a.

Stage I

REGRESSION ANALYSIS

MEXICO - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[i]-C(SC)4-IV	3.99	.047	.11	.01	.01
[s] OVAL 11-A	6.26	.013	.17	.03	.02
-OVAL 16	5.56	.019	.21	.04	.02
OVAL 15	4.73	.030	.24	.06	.01
[s]-OVAL 12-B	5.02	.026	.26	.07	.01
[i] OCC ASP	19.88	.001	.35	.12	.05
[i] ED ASP	6.18	.013	.37	.14	.02
[i] RAVEN	84.04	.001	.55	.31	.17
[i] BRS	17.79	.001	.58	.34	.03

Additional Explanatory Variables:

	pr	p	r	p

---

[i] = An identical predictor or explanatory factor across samples.

[s] = A similar predictor across samples.

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

-[i]C(SC)4-IV* = Does not Cope with Authority

[s]OVAL 11-A = Values Altruism, Self-Satisfaction, and Surroundings; doesn't value Prestige and Economic Returns.

- OVAL 16 = Doesn't value Variety

OVAL 15 = Values Independence; doesn't value Management

-[s]OVAL 12-B = Doesn't value Independence, Surroundings, and Associates; values Intellectual Stimulation and Creativity.

[i]OCC ASP = Occupational Aspiration

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

---

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

MEXICO - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)17	23.40	.001	.33	.11	.11
C(SC)2-III	11.65	.001	.40	.16	.05
C(SC)4-I	4.19	.04	.42	.18	.02
C(SC)6	2.06	.15(NS)	.43	.19	.01
[i]-C)SC)3-IV	3.97	.05	.45	.20	.02
[s]-OVAL 12-B	6.00	.02	.48	.23	.02
-OVAL 16	5.21	.02	.50	.25	.02
[s] OVAL 11-A	4.20	.04	.51	.26	.02
-OVAL 15-C	7.41	.007	.54	.29	.03
[i] OCC ASP	24.92	.001	.61	.38	.08
[i] ED ASP	5.24	.02	.63	.39	.02
[i] RAVEN	33.42	.001	.70	.49	.09
[i] BRS	30.83	.001	.75	.56	.07

Additional Explanatory Variables:

	pr	p	r	p
C(SC)1-V			.19	.05
C(SC)8			.19	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 10 Year Olds — CRITERION: Reading Achievement

Predictor Variables:

[n]C(SAI)17 = Copes effectively

C(SC)2-III = Copes with Interpersonal Relations

C(SC)4-I = Copes with Anxiety

C(SC)6 = Depressive, not Neutral Affect toward Interpersonal Relations; Depressive Affect toward Authority and Aggression.

-[i]C(SC)3-IV* = Does not cope with Authority

-[s]OVAL 12-B = Values Creativity; doesn't value Surroundings and Associates

-OVAL 16 = Doesn't value Creativity and Variety

[s]OVAL 11-A = Values Altruism and Self-Satisfaction; doesn't value Management, Prestige, and Economic Returns.

-OVAL 15-C = Doesn't value Success and Security

[i]OCC ASP = Occupational Aspiration

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)1-V = Copes with Task Achievement

C(SC)8 = Positive Attitudes toward Task Achievement and Authority

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

MEXICO - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)8	5.06	.025	.12	.01	.01
C(SC)7	4.12	.043	.16	.03	.01
[s] OVAL 11-A	27.57	.001	.31	.10	.07
RAVEN	1.83	.177 (NS)	.32	.10	.004
[i] BRS	4.41	.036	.34	.11	.01

Additional Explanatory Variables:

	pr	p	r	p
-C(SC)1-I			-.11	.05
-OVAL 14	-.11	.035		
-OVAL 16	-.10	.049		
[s]-OVAL 12-B	-.11	.036		
[i] OCC ASP	.11	.036		
[i] ED ASP	.11	.050		

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

- C(SC)8[*] = Does not cope effectively with Task Achievement via Stance; has Negative, not Neutral Affect toward Task Achievement.

C(SC)7 = Positive Attitudes toward Authority and Interpersonal Relations.

[s]OVAL 11-A = Values Altruism, Self-Satisfaction, and Surroundings; doesn't value Prestige and Economic Returns.

RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

- C(SC)1-I = Does not cope with Anxiety

- OVAL 14 = Values Following Father's Occupation ; doesn't value Esthetics.

- OVAL 16 = Doesn't value Variety

-[s]OVAL 12-B = Values Intellectual Stimulation and Creativity; doesn't value Independence, Surroundings, and Associates.

[i]OCC ASP = Occupational Aspiration

[i]ED ASP = Educational Aspiration

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[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor m[illegible] described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

MEXICO - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n] C(SAI)17	17.20	.001	.29	.08	.08
C(SC)2-III	3.30	.07(NS)	.31	.10	.02
C(SC)7	4.62	.03	.34	.12	.02
-OVAL 15-C	4.15	.04	.37	.14	.02
[s] -OVAL 12-B	2.29	.13(NS)	.38	.15	.01
OVAL 16	5.39	.02	.41	.17	.02
[s] OVAL 11-A	6.06	.02	.44	.20	.03
[i] ED ASP	6.25	.01	.47	.22	.03
RAVEN	32.86	.001	.58	.34	.12
[i] BRS	9.46	.002	.61	.37	.03

Additional Explanatory Variables:

	pr	p	r	p
C(SC)3-IV			.17	.05
[i] OCC ASP			.20	.05

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

[n]C(SAI)17 = Copes effectively

C(SC)2-III = Copes with Interpersonal Relations

C(SC)7 = Hostile, not Neutral Affect toward Interpersonal Relations; Hostile Affect toward Authority

- OVAL 15-C* = Doesn't value Success and Security

-[s]OVAL 12-B = Values Creativity; doesn't value Surroundings and Associates

- OVAL 16 = Does not value Creativity and Variety

[s]OVAL 11-A = Values Altruism and Self-Satisfaction; doesn't value Management, Prestige, and Economic Returns

[i]ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)3-IV = Copes with Authority

[i]OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

MEXICO - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)18	3.69	.056	.10	.01	.01
[n] C(SAI)17	12.20	.001	.21	.04	.03
[s] OVAL 11-A	19.68	.001	.31	.09	.05
-OVAL 16	7.87	.005	.34	.11	.02
OVAL 15	5.47	.020	.36	.13	.01
[s]- OVAL 12-B	8.72	.003	.39	.15	.02
[i] ED ASP	3.60	.059	.40	.16	.01
[i] RAVEN	28.64	.001	.47	.22	.06
[i] BRS	127.50	.001	.66	.43	.21

Additional Explanatory Variables:

	pr	p	r	p
OVAL 13-C	.11	.041		
[i]OCC ASP	.18	.001		

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

-[n]C(SAI)18* = Does not show defensive behavior

[n]C(SAI)17 = Copes effectively

[s]OVAL 11-A = Values Altruism, Self-Satisfaction, and Surroundings; doesn't value Prestige and Economic Returns.

- OVAL 16 = Doesn't value Variety.

OVAL 15 = Values Independence; doesn't value Management.

-[s]OVAL 12-B = Values Intellectual Stimulation and Creativity: doesn't value Independence, Surroundings, and Associates.

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

OVAL 13-C = Values Success and Security

[i]OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

MEXICO - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)2-III	33.32	.001	.38	.15	.15
C(SC)3-IV	9.22	.003	.43	.19	.04
C(SC)6	6.66	.01	.46	.21	.03
[n]C(SAI)17	7.19	.01	.49	.24	.03
-C(SC)10	3.36	.05	.51	.26	.02
[s]-OVAL 12-B	5.75	.02	.53	.28	.02
OVAL 14	3.36	.07	.54	.29	.01
-OVAL 16	5.14	.03	.57	.31	.02
[i]RAVEN	38.07	.001	.65	.43	.12
[i]BRS	25.22	.001	.70	.50	.07

Additional Explanatory Variables:

	pr	p	r	p
C(SC)1-V			.19	.05
C(SC)4-I			.20	.05
C(SC)5-II			.15	.05
-C(SC)7			-.23	.05
[s] OVAL 11-A			.15	.05
[i] OCC ASP			.14	.05
[i] ED ASP			.26	.05

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)2-III = Copes with Interpersonal Relations

C(SC)3-IV = Copes with Authority

C(SC)6 = Depressive, not Neutral Affect toward Interpersonal Relations; Depressive Affects toward Authority and Aggression

[n]C(SAI)17 = Copes effectively

- C(SC)10* = Positive Affect toward Anxiety

-[s]OVAL 12-B = Values Creativity; doesn't value Surroundings and Associates

OVAL 14 = Values Intellectual Stimulation; doesn't value Following Father's Occupation

- OVAL 16 = Doesn't value Creativity and Variety

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)1-V = Copes with Task AChievement

C(SC)4-I = Copes with Anxiety

C(SC)5-II = Copes with Aggression

- C(SC)7 = Neutral, not Hostile Affect toward Interpersonal Relations; lack of Hostile Affect toward Authority.

[s]OVAL 11-A = Values Altruism and Self-Satisfaction; doesn't value Management, Prestige, and Economic Returns.

[i]Occ ASP = Occupational Aspiration

[i]ED ASP = Educational Aspiration

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

MEXICO - 10 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	16.9%	0.5%	6.5%
Coping/Motivation (unique)	4.6%	8.6%	9.2%
Total	30.5%	10.1%	22.3%
MEXICO - 10 Year Olds - Stage III			
Aptitude (unique)	9.4%	11.7%	11.7%
Coping/Motivation (unique)	14.2%	7.0%	14.4%
Total	48.7%	33.9%	42.7%

Table 23

CORRELATIONS AMONG THE CRITERIA

MEXICO - 10 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Reading			
Math	.08		.30
GPA	.54		
MEXICO - 10 Year Olds - Stage III			
Reading			
Math	.62		.53
GPA	.58		

MEXICO - 14 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Mexican 14 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, Views of Life, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Mexican students. Sex and socioeconomic status differences are then described. Finally, the regression analyses are delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. Five general factors emerged: coping with aggression, authority, anxiety, interpersonal relations, and task achievement. All included neutral, not negative affect, in the respective behavioral area. Unit weights were constructed using those variables having a factor loading ($\leq .40$). For example, factor 1 consisted of all five variables that concern coping with anxiety. Factors 6-10 also tended to group variables according to sub-aspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same tendencies, with four major factors corresponding to four of the behavioral areas. Coping with aggression, however, split into two factors: factor five reflected coping effectiveness with neutral, not hostile affect, whereas factor six reflected coping with aggression via stance, engagement, and (not) seeking aid or advice.

As these factors appeared to be yielding similar results, a comparison of the first five factors was examined (see Table 3). Factor six was used for coping with aggression in Stage III as it was more similar to the aggression factor in Stage I. These factors proved highly similar, with respective percentages of common variables across stages of 80%, 50%, 100%, and 80%. Furthermore, some of the variables which did not load higher than .40 in both stages still showed similar direction. While the program RELATE could not be run, due to slightly different numbers of variables in the two stages, these factors are considered "identical," and appear to indicate a stable "Mexican" construct system at age 14, that defines coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\leq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that only one of the six factors was "similar," having a cosine of .8 or better (interpreted similar to a correlation coefficient). Table 7 depicts the item comparison of this factor across the two stages. Three other factors had cosines above .70; the remaining two, above .60. The results of this comparison indicate some similarity in constructs across time for Mexican 14 year old students, but with enough variability to prevent it from being a highly stable construct system.

Views of Life

The Views of Life instrument was used only in Stage III. The factor analysis of these variables yielded eight factors and is depicted in Table 8.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This is a self-report measure of coping effectiveness. Two factors emerged: ineffective or defensive responding, and positive coping.

In Stage III, the SAI is an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reports effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made for the Sentence Completion and Occupational Values instruments, which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 shows the content of the factors in the two samples. If a factor in one sample has no corresponding factor in the other sample, the factor retains its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I has no comparable factor in the second stage. If, however, a factor does have a comparable factor in the other sample, it receives a new designation.

The comparison of the Sentence Completion factors was described earlier. The first five factors were highly similar and are referred to as "identical" factors. These factors have a Roman numeral designation in Table 11.

The Occupational Values instrument was compared by the RELATE factor comparison method. One of these factors is called "similar" (RELATE value of .80 to .90) and receives an alphabetic designation. That is, similar factor "A" consists of original factor OVAL 16 in Stage I and OVAL 13 in Stage III. The unique factors in both samples are listed below these; they did show resemblances across stages, but not enough to meet the "similar" criterion ($\leq$ .80).

In the Mexican 14 year old sample, the first five Sentence Completion factors were identical across stages. There were no "identical" factors in the Occupational Values comparison, and only one of the six comparisons was "similar." The coping patterns represented by the Sentence Completion factors may remain stable in the Mexican 14 year old student population. The Occupational Values factor structures were quite different across samples, however, suggesting considerable change in this construct system between 1965 and 1968.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males reported themselves as coping more effectively than females in four of the five behavior areas in Mexico: anxiety, authority, task achievement, and interpersonal relations. In terms of occupational values, males placed greater value on independence, following father's occupation, and management. Females, on the other hand, more highly valued success, intellectual stimulation, and variety than did males.

There were fewer sex differences in Stage III (Table 13). Males again tended to report themselves as coping more effectively with Anxiety. Females expressed more depressive affect than males toward interpersonal relations, authority, and aggression. Females placed greater value on occupational success, whereas males more highly valued prestige. Males also expressed a greater preference for self-initiation of action.

Thus, only one factor showed the same sex difference in both stages. Males appeared to consistently cope more effectively with anxiety than did females.

SES DIFFERENCES

Stage I social class differences are listed in Table 14. There were five significant SES differences. Middle-class students tended to report themselves as coping more effectively with task achievement than the lower class. The middle class placed greater value on following father's occupation, success, and independence, whereas the lower-class students more highly valued intellectual stimulation, variety, and management. The lower class also reported greater use of defensive behavior on the SAI than did the middle class.

There were quite a few more social class differences in Stage III. The middle-class students showed better coping with interpersonal relations, but lower-class students coped more effectively with aggression (SC). Despite the fact that the lower class also expressed more depressive affect (SC) toward interpersonal relations, aggression, and authority, they reported better overall coping on the SAI than did middle-class students. In a work setting, lower-class students placed greater value on security, following father's occupation, self-satisfaction, intellectual stimulation, and variety, whereas the middle class more highly valued esthetics and independence. On the Views of Life, middle-class students more highly valued work for its own sake rather than for the rewards it may bring. They also expressed a greater preference for independent action and self-initiation of action. Seemingly in contradiction, lower-class students expressed greater preference for solving their own problems than did the middle class. They also viewed life as more complex and difficult.

A contradictory finding was that in Stage I lower-class students placed greater value on following father's occupation, while this was reversed in Stage III, with the middle class more highly valuing following in their fathers' line of work.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Table 16a and 16b. Good readers tended to cope well in all five areas of behavior. They also reported less defensive behavior on the SAI than did poorer readers. These students had higher aptitude, as well as higher educational and occupational aspirations. Their peers rated them higher on the Behavior Rating Scale. In terms of Occupational Values, better readers more highly valued altruism, creativity, following father's occupation, success, surroundings, and associates. They placed less value on independence, security, economic returns, intellectual stimulation and variety.

In Stage III (Tables 17a and 17b), good readers were intrinsically motivated, independent, and preferred to solve problems with others. They viewed life as less complex than poor readers, had good aptitude and high educational aspirations. Although better readers expressed more positive affect toward task achievement and anxiety, they did not cope as well with aggression. They were rated more highly by their peers on the Behavior Rating Scale than poorer readers. Occupational aspiration also was positively correlated with reading achievement. In addition, good readers reported less depressive affect toward authority, aggression, and interpersonal relations than poor readers. They placed greater value on following father's occupation, and less on self-satisfaction, intellectual stimulation, and variety. Surprisingly, good readers did not report good coping on the SAI.

There were no coping or motivational factors which predicted reading achievement in both stages. In fact, coping with aggression predicted in an opposite direction in the two samples. Thus, even though many factors were significant predictors in either stage, the specific patterns were unique in each sample.

The measures of educational and occupational aspirations were, however, predictive in both stages. The aptitude (Raven) and peer ratings (BRS) also were positively associated with reading achievement in Mexican 14 year old students, in both samples.

Math Achievement

Predictors of math achievement in Stage I are listed in Tables 18a and 18b. Good math students tended to cope well with interpersonal relations. Although they did not have a positive attitude toward authority, interpersonal relations or task achievement, they still reported less defensive behavior on the SAI than did poorer students. Students who did well in math placed greater value on altruism, creativity, independence, and success, and less value on security, economic returns, and management. In addition, these students had good aptitude, and high aspirations for both career and education. They also were rated highly by their peers on the Behavior Rating Scale.

In Stage III (Tables 19a and 19b), students who did well in math were intrinsically motivated, independent, and viewed life as complex. They coped well with interpersonal relations and highly valued altruism, surroundings, and associates. They did not value self-satisfaction, intellectual stimulation, variety, management, prestige, or economic returns. In addition, good math students had high aptitude scores and high educational and occupational aspirations. They were also highly rated by their peers on the Behavior Rating Scale.

Coping effectively with interpersonal relations was important for success in math in both stages. So were aptitude (Raven), peer ratings (BRS), and educational and occupational aspirations.

Grade Point Average (GPA)

Predictors of GPA for Stage I are listed in Tables 20a and 20b. Students with high GPA coped well with anxiety and with interpersonal relations. They expressed positive, not neutral affect toward task achievement. These students valued altruism and creativity, but not security or economic returns. In addition, they had good aptitude and were rated highly by their peers on the Behavior Rating Scale.

In Stage III (Tables 21a and 21b), none of the coping scores or Occupational Values were predictive of GPA. Successful students did view life as complex. They were cooperative, expressive of feelings, and preferred solving problems with others. They had high aptitude scores and were highly rated by their peers on the Behavior Rating Scale. Educational aspiration was also positively associated with GPA.

Thus, in the Mexican 14 year old sample, there were significantly fewer predictors of GPA than of reading or math achievement. Not only were the coping and values scores less predictive, but educational and occupational aspirations were also less predictive. As the BRS accounted for a substantial portion of the variance in GPA (38% - Stage I; 12% - Stage III), it appears that these peer ratings reflect classroom behavior which is highly associated with teacher grades. The Raven was also predictive across all criteria.

PERCENTAGE OF VARIANCE

It is important to consider the percentages of variance accounted for by aptitude and coping/motivation variables, respectively, in accounting for success on the criterion measures. These are listed in Table 22. Aptitude was an important predictor across both stages, for all criteria, accounting for 6.3% of the variance in reading, 15.6% in math, and 6.3% in GPA, Stage I, and 6.2%, 14.6% and 13.6% of the Stage III reading, math and GPA variance, respectively.

The coping motivation factors also were useful predictors. In Stage I, they accounted for 14% of the variance in reading, substantially more than did aptitude. In math, coping/motivation scores accounted for an average of 9.8% of the variance. Coping/motivation was less predictive of GPA, though it accounted for about 4.6% of the variance. In Stage III, 20.3% of the reading variance, 13.0% of the math achievement variance and 4% of the GPA variance was explained.

In sum, while aptitude was important, the coping/motivation factors also were substantial predictors of school success, especially of achievement in reading and math, for Mexican 14 year olds.

Table 1

STAGE I

SENTENCE COMPLETION

MEXICO - 14 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Attitude - Authority	.010	.037	.054	.070	.090	.711*	.027	.079	-.087	-.053
40 Att. - Interpersonal Relations	-.042	.012	.056	-.041	-.100	.768*	.023	-.012	.088	-.087
41 Att. - Task Achievement	-.011	.087	.008	.090	.090	.475*	-.151	-.164	-.035	.116
43 Aggression - Stance	.052	.886*	.097	.015	.047	.032	.080	-.039	.145	.061
44 Aggression - Engagement	.006	.690*	-.062	-.092	-.090	.084	.170	-.180	.167	.160
45 Aggression - Coping Eff.	.081	.936*	.127	.070	.073	.014	-.032	.008	.053	-.001
46 Aggression - Neg. Affect	-.083	-.833*	-.142	-.162	-.136	-.020	.120	-.098	.140	.172
47 Aggression - Pos. Affect	.083	.833*	.142	.162	.136	.020	-.120	.098	-.140	-.172
48 Authority - Stance	.045	.091	.836*	.091	.010	.131	-.070	.106	.172	.003
49 Authority - Engagement	.097	-.092	.467*	-.093	-.149	.173	.158	.129	.268	-.004
50 Authority - Coping Eff.	.073	.129	.936*	.110	.126	.045	-.041	.087	.025	.023
51 Authority - Neg. Affect	-.108	-.165	-.850*	-.084	-.281	.082	-.001	.062	.157	-.061
52 Authority - Neutral Aff.	.116	.166	.833*	.091	.286	-.071	-.002	-.189	-.165	.072
53 Authority - Pos. Affect	-.062	-.013	.071	-.049	-.052	-.070	.030	.855*	.060	-.082
54 Anxiety - Stance	.905*	.063	.029	.027	.005	-.008	.025	.048	.049	.098
55 Anxiety - Engagement	.705*	.030	.033	-.058	-.015	.194	.081	.169	.052	.211
56 Anxiety - Coping Eff.	.904*	.061	.065	.121	.047	-.055	.006	-.071	-.005	-.063
57 Anxiety - Neg. Affect	-.932*	-.062	-.110	-.107	-.078	.076	.027	.100	-.001	.044
58 Anxiety - Neutral Aff.	.932*	.062	.110	.107	.078	-.076	-.027	-.100	.001	-.044

STAGE I

SENTENCE COMPLETION

MEXICO - 14 Year Olds (continued)		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
		Loadings									
Item											
59	Interpersonal Relations - Stance	.092	.104	.068	[illegible]02	.347	-.029	-.036	-.001	.736*	.004
60	IPR - Engagement	.011	.043	-.018	.070	.441*	-.062	-.068	.112	.603*	.262
61	IPR - Coping Eff.	.071	.110	.126	.116	.811*	.050	-.035	.014	.440*	-.014
62	IPR - Negative Affect	-.056	-.102	-.182	-.095	-.919*	-.046	-.022	.035	-.050	.113
63	IPR - Neutral Affect	.084	.081	.209	.114	.904*	.033	.006	-.059	.077	.060
64	IPR - Positive Affect	-.125	.087	-.128	-.085	.020	.056	.071	.107	-.120	-.755*
65	Task Achievement - Stance	.064	.094	-.001	.892*	.081	.065	.068	.087	-.036	.164
66	Task Ach. - Engagement	.063	.055	-.029	.580*	.046	.126	.268	.244	-.271	.349
67	Task Ach. - Coping Eff.	.071	.105	.078	.933*	.082	.057	-.094	-.001	.042	.057
68	Task Ach. - Neg. Affect	-.133	-.052	-.224	-.751*	-.121	.015	.113	.253	-.232	.214
69	Task Ach. - Neutral Aff.	.135	.037	.169	.723*	.090	-.063	.458*	-.185	.153	-.207
70	Task Ach. - Pos. Affect	-.034	.012	.039	-.129	.022	.083	-.927*	-.053	.077	.039

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

MEXICO - 14 Year Olds	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
64 Task Achievement-Attitude	.060	.012	.152	.084	.335	.001	.172	.264	.024	-.175
65 T.A. - Stance	.885*	.090	.062	.032	.075	.050	-.032	.040	-.009	-.108
66 T.A. - Engagement	.751*	-.001	.065	.077	.050	.118	.189	-.126	-.243	-.300
67 T.A. - Aid/Advice	.696*	-.023	.139	.099	.085	.040	.159	-.059	-.272	.369
68 T.A. - Coping Effect	.858*	.023	.144	.095	.101	.035	.046	.016	-.073	.009
69 T.A. - Hostile Affect	-.546*	-.050	-.120	.018	.014	-.047	.165	.025	-.303	-.016
70 T.A. - Depressive Aff.	-.716*	-.116	.025	-.003	-.101	.057	.110	-.131	-.066	.203
71 T.A. - Neutral Aff.	.868*	.108	.064	-.033	.094	-.044	-.184	-.077	.164	-.157
72 T.A. - Positive Aff.	-.103	.025	-.055	.102	-.112	.115	.032	.636*	.233	.068
73 Interpersonal Relations Attitude	-.013	.014	.002	.065	.203	.026	.123	.038	.470*	.141
74 I.R. - Stance	.054	.11[illegible]	.134	.895*	-.009	.048	-.105	.027	-.016	-.020
75 I.R. - Engagement	.033	.121	.111	.932*	.002	.027	-.017	-.025	.104	-.062
76 I.R. - Aid/Advice	.039	.120	.100	.935*	.009	.023	-.022	-.019	.098	-.059
77 I.R. - Coping Effect	.065	.186	.167	.877*	.103	-.014	-.192	.034	-.184	.050
78 I.R. - Hostile Affect	-.042	-.192	-.131	-.438*	-.160	.051	-.201	-.207	.515*	.044
79 I.R. - Depressive Aff.	-.030	-.027	-.109	-.246	-.045	-.000	.686*	.072	.087	-.313
80 I.R. - Neutral Aff.	.056	.171	.188	.536*	.161	-.039	-.388	.104	-.469*	.214
81 I.R. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

MEXICO - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.137	.136	.069	.030	.117	-.115	.070	.188	.427*	.339
83 Auth. - Stance	.124	.156	.834*	.138	.053	-.026	-.226	-.065	.017	-.125
84 Auth. - Engagement	.049	.110	.841*	.120	-.012	.092	.114	.151	.086	.033
85 Auth. - Aid/Advice	.107	.071	.858*	.121	.001	.099	.155	.128	.057	.023
86 Auth. - Coping Eff.	.121	.172	.909*	.152	.0[illegible]8	-.005	-.227	.002	-.013	-.059
87 Auth. - Hostile Aff.	-.046	-.180	-.556*	-.017	-.170	-.018	.048	.295	.281	-.254
88 Auth. - Depress. Aff.	-.151	-.035	-.405*	-.106	-.030	-.058	.615*	-.194	-.044	.255
89 Auth. - Neutral Aff.	.149	.154	.704*	.094	.143	-.032	-.504*	-.061	-.165	-.015
90 Auth. - Positive Aff.	0	0	0	0	0	0	0	0	0	0
91 Anxiety - Attitude	-.009	.037	.006	.120	.097	.125	.021	.332	-.346	-.341
92 Anx. - Stance	.054	.832*	.145	.086	.143	-.024	-.116	.256	-.053	-.004
93 Anx. - Engagement	.143	.795*	.038	.097	.012	.196	.176	-.208	.125	-.031
94 Anx. - Aid/Advice	.135	.782*	.047	.105	.013	.181	.184	-.206	.134	-.034
95 Anx. - Coping Eff.	.041	.895*	.167	.106	.101	-.003	-.169	.136	-.042	-.021
96 Anx. - Hostile Aff.	.002	-.315	-.054	-.126	-.135	.008	-.114	.331	.041	.559*
97 Anx. - Depressive Aff.	-.045	-.734*	-.194	-.107	-.054	.039	.228	-.255	.120	-.244
98 Anx. - Neutral Aff.	.018	.817*	.155	.183	.105	-.006	-.078	-.178	-.063	-.079
99 Anx. - Positive Aff.	.055	-.030	.119	-.062	.035	-.087	-.164	.618*	-.175	-.014

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

MEXICO - 14 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	.027	.144	.182	.136	-.245	.649*	-.173	.026	.011	.144
101 Agg. - Engagement	.054	.053	.012	-.037	.276	.888*	.022	.004	.004	-.037
102 Agg. - Aid/Advice	.051	.054	-.019	-.022	.277	.879*	.047	-.009	-.030	-.089
103 Agg. - Coping Effect	.098	.158	.138	.031	.817*	.341	-.111	-.010	.041	.018
104 Agg. - Hostile Aff.	-.170	-.110	-.034	-.025	-.925*	.017	-.075	.082	-.050	-.038
105 Agg. - Depressive Aff.	-.062	-.136	-.063	-.120	.120	-.285	.422*	-.138	.039	.052
106 Agg. - Neutral Aff.	.197	.163	.059	.071	.895*	.091	-.085	-.031	.036	.019
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR MEXICO 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	6	3	3	4	1	5	4
64 Task Achievement - Attitude										
65 TA - Stance							.89	.89		
66 TA - Engagement							.58	.75		
*67 TA - Aid/Advice								.70		
68 TA - Coping							-.93	.86		
**69 TA - Hostile							-.75	-.55		
**70 TA - Depressive								-.72		
71 TA - Neutral							.72	.87		
72 TA - Positive										
73 Interpersonal Relations - Attitude										
74 IPR - Stance									(.35)	.90
75 IPR - Engagement									.44	.93
*76 IPR - Aid/Advice										.94
77 IPR - Coping									.81	.88
**78 IPR - Hostile									-.92	-.44
**79 IPR - Depressive										(-.25)
80 IPR - Neutral									.90	.54
81 IPR - Positive										

Table 3
(continued)

ITEM COMPARISON FOR MEXICO 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	6	3	3	4	1	5	4
82 Authority - Attitude										
83 Auth. - Stance					.84	.83				
84 Auth. - Engagement					.47	.84				
*85 Auth. - Aid/Advice						.86				
86 Auth. - Coping					.94	.91				
**87 Auth. - Hostile					-.85	-.56				
**88 Auth. - Depressive						-.41				
89 Auth. - Neutral					.83	.70				
90 Auth. - Positive										
*91 Anxiety - Attitude										
92 Anxiety - Stance	.91	.83								
93 Anxiety - Engagement	.71	.80								
*94 Anxiety - Aid/Advice		.78								
95 Anxiety - Coping	.90	.90								
**96 Anxiety - Hostile	-.93	(-.32)								
**97 Anxiety - Depressive		-.73								
98 Anxiety - Neutral	.93	.82								
*99 Anxiety - Positive										

Table 3
(continued)

ITEM COMPARISON FOR MEXICO 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	6	3	3	4	1	5	4
100 Aggression - Stance			.89	.65						
101 Aggression - Engagement			.69	.89						
102 Aggression - Aid/Advice				.88						
103 Aggression - Coping			.94	(.34)						
104 Aggression - Hostile			-.83	(.02)						
105 Aggression - Depressive				(-.28)						
106 Aggression - Neutral										
107 Aggression - Positive			.83							

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* This variable was only present in the Stage III instrument.

** In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable - "Negative Affect"

Table 4

STAGE I

OCCUPATIONAL VALUES

MEXICO - 14 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	.325	.215	.486*	-.282	.291	.161
15	Esthetics	-.020	-.600*	.026	.160	.194	-.083
16	Independent	-.022	.035	-.005	-.114	.051	-.872*
17	Management	-.018	.193	-.120	-.007	-.798*	.046
18	Success	-.242	.641*	-.058	.036	.450*	.104
19	Self-Satisfaction	.102	.583*	.130	.157	-.069	-.317
20	Intellectual Stimulation	-.178	.052	.369	.537*	.271	.302
21	Creativity	-.243	-.506*	.438*	.143	.042	.262
22	Security	-.014	.420*	-.587*	-.007	.155	.332
23	Prestige	-.362	-.544*	-.340	-.158	.151	-.083
24	Economic Returns	-.104	-.109	-.790*	-.110	-.093	.012
25	Surroundings	.782*	.170	.109	.058	-.003	.050
26	Associates	.802*	-.036	.007	-.042	-.007	-.055
27	Variety	-.119	-.013	.169	.696*	-.255	.110
28	Follow Father	-.343	.029	.186	-.714*	-.219	.087

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

Stage III

OCCUPATIONAL VALUES

MEXICO - 14 Year Olds Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	.607*	.138	.049	.194	-.324	.099
15 Esthetics	-.199	.168	-.539*	.315	-.287	.174
16 Independence	.034	-.343	-.788*	-.054	.027	-.133
17 Management	-.601*	-.166	.093	.243	-.079	.074
18 Success	-.037	-.078	.093	-.043	.027	.874*
19 Self-Satisfaction	.463*	-.169	.125	.186	.464*	-.112
20 Intellectual Stimulation	-.008	.590*	-.018	.097	.456*	.114
21 Creativity	-.005	.780*	.043	-.011	-.015	-.151
22 Security	-.074	-.444*	.612*	.000	-.038	.139
23 Prestige	-.523*	.163	-.091	-.033	-.365	-.430*
24 Economic Returns	-.621*	-.359	.249	.011	-.120	-.192
25 Surroundings	.635*	-.147	.262	.321	-.104	.060
26 Associates	.685*	-.228	-.039	-.058	.041	-.246
27 Variety	.001	.196	.001	.019	.773*	.069
28 Follow Father	-.092	-.053	.069	-.921*	-.105	.072

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR MEXICO 14 YEAR OLDS - STAGE I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.70	-.25	.18	.48	-.20	-.38
12	.31	-.50	.35	-.22	.45	.54
13	.60	.60	-.24	-.38	.29	-.03
14	-.13	.25	-.06	.70	.64	.10
15	.19	.16	-.27	.30	-.48	.74
16	-.06	.50	.84*	.03	-.17	.09

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* Similar factors

Table 7

ITEM COMPARISON FOR MEXICO 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES
(Factor Loadings)

MEXICO	A		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	16	13								
14 Altruism										
15 Esthetics	(-.08)	-.54								
16 Independence	-.87	-.79								
17 Management										
18 Success										
19 Self-Satisfaction										
20 Intellectual Stimulation										
21 Creativity										
22 Security	(.33)	.61								
23 Prestige										
24 Economic Returns										
25 Surroundings										
26 Associates										
27 Variety										
28 Follow Fahter										

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* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 8

Stage III

VIEWS OF LIFE

MEXICO - 14 Year Olds Item	Loadings Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
43 Locus of Control(Internal/external)	.193	-.128	-.063	.022	.357	.094	.177	.353
44 Academic Locus of Control	-.261	-.155	-.026	.051	.053	-.086	.175	.118
45 Action-Inaction	-.073	-.020	.071	-.041	.117	.382	.017	-.134
46 Immediate-Delayed Action	.148	.048	.068	.203	-.067	.443*	.136	.035
47 Rate of Action	.054	.343	.051	-.003	.141	.256	.038	.089
48 Intrinsic-Extrinsic Work Motiva.	.423*	.078	.002	-.117	.053	.016	-.023	.232
49 Task Achievement-Interpersonal Relations	-.013	-.111	.085	.165	.039	.042	.544*	-.102
50 Competition-Cooperation	.093	.468*	-.022	.043	.048	-.135	-.013	-.085
51 Independent- Obedient	.600*	.091	-.099	.122	.093	-.073	-.020	.025
52 Earned-Bestowed Status	.340	-.018	-.004	-.242	.350	-.006	.021	-.165
53 Confront-Avoid	-.031	.082	-.040	-.105	.067	.185	.326	.096
54 Self - Other Initiation	.100	.225	.063	.087	.583*	.144	.132	-.046
55 Self - Other Solver	-.070	.032	-.016	.500*	.041	.061	-.001	.075
56 Self - Joint Implementation	.079	-.216	.267	.335	-.086	-.259	.151	-.024
58 Instrument - Fantasy	-.072	-.039	.361	-.171	.179	-.031	.363	.170
59 Emotional Control/Expressivity	-.088	-.554*	-.026	.031	.027	-.105	.057	-.139
60 Activity/Passivity under Stress	.254	.063	-.235	-.073	.031	.199	.124	-.064
61 Positive/Negative Self-Esteem	-.101	.094	.627*	.036	.015	.233	.066	.049
62 View of Life (Complex/Simple)	-.014	-.091	-.094	-.089	.063	.089	.002	-.422*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

MEXICO - 14 Year Olds	Loadings Factor 17	Loadings Factor 18
Sub-Scores		
1 Active Coping	.774*	-.189
2 Passive Coping	.798*	.264
3 Active Defensive	-.135	.722*
4 Passive Defensive	.198	.815*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

Stage III

SOCIAL ATTITUDES INVENTORY

MEXICO - 14 Year Olds	Factor Loading
Sub-Scores	Factor 25
37 Task Achievement	.387*
38 Authority	.540*
39 Aggression	.481*
40 Interpersonal Relations	.434*
41 Anxiety	.670*

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

MEXICO - 14 Year Olds

New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
		COMMON FACTORS		
I	C(SC)	1	2	Copes with Anxiety
II	C(SC)	2	6	Copes with Aggression
III	C(SC)	3	3	Copes with Authority
IV	C(SC)	4	1	Copes with Task Achievement
V	C(SC)	5	4	Copes with Interpersonal Relations
A	OVAL	16	13	Does not value Independence (does not value Esthetics, but does value Security)*
		UNIQUE FACTORS		
	C(SC)	6	-	Positive Attitude toward Authority, Interpersonal Relations and Task Achievement
	C(SC)	7	-	Neutral not Positive Affect toward Task Achievement
	C(SC)	8	-	Positive Affect toward Authority
	C(SC)	9	-	Copes effectively with Interpersonal Relations via Stance and Engagement
	C(SC)	10	-	Lack of Positive Affect toward Interpersonal Relations
	OVAL	11	-	Values Surroundings and Associates
	OVAL	12	-	Values Success, Self-Satisfaction, Security and does not value Esthetics, Creativity or Prestige
	OVAL	13	-	Values Altruism and Creativity; does not value Security or Economic Returns
	OVAL	14	-	Values Intellectual Stimulation and Variety, does not value Following Father's Occupation
	OVAL	15	-	Values Success not Management
	C(SC)	-	5	Copes effectively with Aggression with Neutral, not Hostile Affect
	C(SC)	-	7	Depressive Affect toward Authority, Aggression, and Interpersonal Relations and a lack of Neutral Affect toward Authority.
	C(SC)	-	8	Expresses Positive Affect toward Task Achievement and Anxiety
	C(SC)	-	9	Positive Attitude toward Interpersonal Relations and Authority with Hostile, not Neutral Affect toward Interpersonal Relations.
	C(SC)	-	10	Hostile Affect toward Anxiety
	OVAL	-	11	Values Altruism, Surroundings, Associates, and Self-Satisfaction and does not value Management, Prestige, or Economic Returns.
	OVAL	-	12	Values Intellectual Stimulation, Creativity and does not value Security.
	OVAL	-	14	Does not value Following Father's Occupation
	OVAL	-	15	Values Self-Satisfaction, Intellectual Stimulation, and Variety
	OVAL	-	16	Values Success; doesn't value Prestige
	C(VOL)	-	17	Intrinsically Motivated, Independent
	C(VOL)	-	18	Competitive, Expressive and Accepting of Emotions
	C(VOL)	-	19	Positive Self-Esteem
	C(VOL)	-	20	Self-Solver
	C(VOL)	-	21	Self-Initiator
	C(VOL)	-	22	Prefers Immediate Action
	C(VOL)	-	23	Concern with Task Achievement
	C(VOL)	-	24	Views Life as Simple
	C(SAI)	17	-	Copes effectively
	S(SAI)	18	-	Shows defensive behavior
	S(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

MEXICO - 14 Year Olds - Stage I

			Probability Level
[i] C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with Neutral, not Negative Affect.	p < .001
C(SC)3-III	F < M	Copes effectively with Authority via Stance and Engagement with Neutral, not Negative Affect.	p < .001
C(SC)4-IV	F < M	Copes effectively with Task Achievement via Stance and Engagement with Neutral, not Negative Affect.	p < .004
C(SC)5-V	F < M	Copes effectively with Interpersonal Relations via Engagement with Neutral, not Negative Affect.	p < .043
C(SC)9	F < M	Copes effectively with Interpersonal Relations via Stance and Engagement	p < .052
OVAL 14	F > M	Values Intellectual Stimulation and Variety; doesn't Follow Father.	p < .001
OVAL 15	F > M	Values Success; doesn't value Management	p < .001
OVAL 16-A	F < M	Values Independence	p < .013

---

* 8/18 (44%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III).

Table 13

SIGNIFICANT SEX DIFFERENCES*

MEXICO - 14 Year Olds - Stage III

			Probability Level
[i]C(SC)2-I	F < M**	Copes effectively with Anxiety with Neutral, not Depressive Affect.	$p < .01$
C(SC)7	F > M	Depressive Affect toward Interpersonal Relations; Depressive, not Neutral Affect toward Authority; and Depressive Affect toward Aggression.	$p < .001$
OVAL 16	F > M	Values Success; doesn't value Prestige	$p < .046$
[n]C(VOL)21	F < M	Prefers Self-Initiation of Action	$p < .002$

---

* 4/25 (16%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III).

[n] = No comparable instrument in the other sample.

Table 14

SIGNIFICANT SES DIFFERENCES*

MEXICO - 14 Year Olds - Stage I

			Probability Level
C(SC)4-IV	L < M**	Copes effectively with Task Achievement via Stance and Engagement with neutral, not negative Affect.	$p < .025$
OVAL 14	L > M	Values Intellectual Stimulation and Variety; doesn't value Following Father's occupation.	$p < .001$
OVAL 15	L < M	Values Success; doesn't value Management.	$p < .007$
OVAL 16-A	L < M	Values Independence	$p < .001$
[n]C(SAI)18	L > M	Shows defensive behavior	$p < .001$

---

* 5/18 (27%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[n] = No comparable instrument in the other sample

Table 15

SIGNIFICANT SES DIFFERENCES*

MEXICO - 14 Year Olds - Stage III

			Probability Level
C(SC)4-V	L < M**	Copes effectively with Interpersonal Relations with neutral, not hostile Affect.	$p < .013$
C(SC)5	L > M	Copes effectively with Aggression with neutral, not hostile Affect.	$p < .041$
C(SC)7	L > M	Depressive Affect toward Interpersonal Relations, Aggression, and Authority, without neutral Affect toward Authority.	$p < .012$
OVAL 13-A	L > M	Values Security; doesn't value Esthetics and Independence.	$p < .037$
OVAL 14	L > M	Doesn't value Following Father's occupation.	$p < .001$
OVAL 15	L > M	Values Self-Satisfaction, Intellectual Stimulation, and Variety.	$p < .005$
[n]C(VOL)17	L < M	Values work for its own sake; prefers Independent Action.	$p < .001$
[n]C(VOL)20	L > M	Prefers to solve own problems.	$p < .001$
[n]C(VOL)21	L < M	Prefers Self-Initiation of Action.	$p < .019$
[n]C(VOL)24	L > M	Views life as complex and difficult.	$p < .004$
[n]C(SAI)25	L > M	Copes effectively	$p < .017$

---

* 11/25 (44%) of the significance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[n] = No comparable instrument in the other sample

Table 16a.

Stage I

REGRESSION ANALYSIS

MEXICO - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)1-I	11.40	.001	.17	.03	.03
-[n]C(SAI)18 *	7.58	.006	.22	.05	.02
C(SC)9	3.74	.054	.25	.06	.01
-OVAL 16-A	31.63	.001	.37	.14	.08
OVAL 13	6.36	.012	.39	.15	.02
-OVAL 14	5.18	.023	.40	.16	.01
OVAL 15	5.69	.018	.42	.18	.01
OVAL 11	4.00	.046	.43	.19	.01
[i] OCC ASP	11.82	.001	.46	.21	.03
[i] ED ASP	4.19	.041	.47	.22	.01
[i] RAVEN	31.07	.001	.53	.28	.06
[i] BRS	23.63	.001	.57	.33	.05

Additional Explanatory Variables:

	pr	p	r	p
[i] C(SC)2-II			.11	.05
C(SC)3-III			.11	.05
C(SC)4-IV			.12	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 14 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

C(SC)1-I = Copes with Anxiety.

-[n]C)SAI)18* = Does not report defensive behavior.

C(SC)9 = Copes effectively with Interpersonal Relations via Stance and Engagement.

- OVAL 16-A = Values Independence

OVAL 13 = Values Altruism, Creativity and does not value Security or Economic Returns.

-OVAL 14 = Values Following Father's occupation, and does not value Intellectual Stimulation or Variety.

OVAL 15 = Values Success, not Management.

OVAL 11 = Values Surroundings and Associates.

[i] OCC ASP = Occupational Aspiration

[i] ED ASP = Educational Aspiration

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scales

Additional Explanatory Variables:

[i]C(SC)2-II = Copes with Aggression

C(SC)3-III = Copes with Authority

C(SC)4-IV = Copes with Task Achievement

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

MEXICO - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}C(VOL)17	29.72	.001	.37	.13	.13
-^{n}C(VOL)20*	15.24	.001	.44	.20	.06
-C(SC)6-II	7.52	.01	.48	.23	.03
C(SC)8	6.26	.01	.50	.25	.02
-^{n}C(VOL)24	4.24	.04	.52	.27	.02
^{i} ED ASP	13.35	.001	.56	.32	.05
^{i} RAVEN	18.62	.001	.62	.38	.06
^{i} BRS	7.18	.01	.63	.40	.02

Additional Explanatory Variables:

	pr	p	r	p
-C(SC)7			-.15	.05
-OVAL 14			-.15	.05
-OVAL 15			-.15	.05
-^{n}C(SAI)25			-.14	.05
^{i} OCC ASP			.32	.05

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 14 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

[n]C(VOL)17 = Intrinsically motivated and independent

-[n]C(VOL)20 *= Solves problems with others

- C(SC)6-II = Does not cope with Aggression

C(SC)8 = Positive Affect toward Task Achievement and Anxiety

-[n]C(VOL)24 = Views life as complex

[i] ED ASP = Educational Aspiration

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scale

Additional Explanatory Variables:

-C(SC)7 = Does not have depressive Affect toward Authority, Aggression and Interpersonal Relations; has neutral Affect toward Authority.

-OVAL 14 = Values Following Father's occupation

-OVAL 15 = Does not value Self-satisfaction, Intellectual Stimulation or Variety.

-[n]C(SAI)25= Does not report good coping

[i] OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

MEXICO - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9	11.39	.001	.17	.03	.03
-[n]C(SAI)18 *	6.05	.014	.22	.05	.02
- C(SC)6	5.95	.015	.25	.06	.02
- OVAL 16-A	21.45	.001	.34	.11	.05
OVAL 13	7.84	.005	.37	.13	.02
OVAL 15	4.84	.028	.38	.15	.01
[i] ED ASP	23.85	.001	.45	.20	.05
[i] OCC ASP	4.87	.028	.46	.21	.01
[i] RAVEN	86.98	.001	.60	.37	.16
[i] BRS	25.57	.001	.64	.41	.04

Additional Explanatory Variables:

	pr	p	r	p
[i] C(SC)5-V			.11	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

C(SC)9 = Copes effectively with Interpersonal Relations via Stance and Engagement

-[n]C(SAI)18*= Does not report defensive behavior

-C(SC)6 = Does not have positive Attitude toward Authority; Interpersonal Relations and Task Achievement

-OVAL 16-A= Values Independence

OVAL 13 = Values Altruism and Creativity; does not value Security or Economic Returns.

OVAL 15 = Values Success not Management

[i] ED ASP - Educational Aspiration

[i] OCC ASP = Occupational Aspiration

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scales

Additional Explanatory Variables:

[i] C(SC)5-V = Copes with Interpersonal Relations

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

MEXICO - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(VOL)17	14.87	.001	.27	.07	.07
-[n]C(VOL)24 *	9.24	.003	.34	.11	.04
- OVAL 15	4.64	.03	.37	.14	.02
OVAL 11	4.64	.03	.39	.16	.02
[i] ED ASP	18.30	.001	.48	.23	.07
[i] RAVEN	44.18	.001	.61	.38	.15
[i] BRS	5.56	.02	.63	.39	.02

Additional Explanatory Variables:

	pr		r	p
[i]C(SC)4-V			.17	.05
[i]OCC ASP			.30	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 14 Year O[illegible] CRITERION: Math Achievement

Predictor Variables:

^{n}C(VOL)17 = Intrinsically motivated, independent

-^{n}C(VOL)24* = Views life as complex

- OVAL 15 = Does not value Self-satisfaction, Intellectual Stimulation or Variety

OVAL 11 = Values Altruism, Surroundings, Associates, Self-satisfaction, and does not value Management, Prestige, or Economic Returns.

^{i}ED ASP = Educational Aspiration

^{i}RAVEN = Raven Progressive Matrices

^{i}BRS = Behavior Rating Scale

Additional Explanatory Variables:

^{i}C(SC)4-V = Copes with Interpersonal Relations

^{i}OCC ASP = Occupational Aspirations

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

MEXICO - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)1-I	6.50	.011	.13	.02	.02
- C(SC)7	6.30	.012	.19	.03	.02
C(SC)9	4.24	.040	.21	.05	.01
OVAL 13	7.83	.005	.26	.07	.02
[i] RAVEN	25.88	.001	.36	.13	.06
[i] BRS	270.66	.001	.71	.50	.38

Additional Explanatory Variables:

	pr	p	r	p

---

[i] = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)1-I = Copes with Anxiety

-C(SC)7 * = Positive, not neutral Affect toward Task Achievement

C(SC)9 = Copes effectively with Interpersonal Relations via Stance and Engagement

OVAL 13 = Values Altruism and Creativity; does not value Security or Economic Returns

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scales

Additional Explanatory Variables:

---

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

MEXICO - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-^{n}C(VOL)24*	7.75	.01	.20	.04	.04
-^{n}C(VOL)18	5.17	.02	.25	.06	.03
-^{n}C(VOL)20	5.72	.055	.29	.08	.02
^{i}RAVEN	32.99	.001	.47	.22	.14
^{i}BRS	35.61	.001	.58	.34	.12

Additional Explanatory Variables:

	pr	p	r	p
ED ASP			.14	.05

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

MEXICO - 14 Year Olds — CRITERION: Grade Point Average

Predictor
Variables:

$-^{n}$C(VOL)24* = Views life as complex

$-^{n}$C(VOL)18 = Cooperative and controls expressions

$-^{n}$C(VOL)20 = Solves problems with others

^{i}RAVEN = Raven Progressive Matrices

^{i}BRS = Behavior Rating Scale

Additional Explanatory Variables:

ED ASP = Educational Aspiration

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

MEXICO - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	6.3%	15.6%	6.3%
Coping/Motivation (unique)	14.0%	9.8%	4.6%
Total	28.4%	36.5%	12.9%

MEXICO - 14 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Aptitude (uniqure)	6.2%	14.6%	13.6%
Coping/Motivation (unique)	20.3%	13.0%	4.0%
Total	37.9%	37.7%	21.8%

Table 23

CORRELATIONS AMONG THE CRITERIA

MEXICO - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.55		.49
GPA	.49		

MEXICO - 14 Year Olds - Stage III

Reading			
Math	.57		.48
GPA	.44		

ENGLAND - 10 YEAR OLDS -- RESULTS AND DISCUSSION

The findings presented in this section provide a detailed picture of the coping patterns that are associated with achievement in English students in both the 1965 (Stage I) and 1968 (Stage III) samples. The results include the factor analysis of the coping/motivational instruments: Sentence Completion, Views of Life, Occupational Values, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of English students. Sex and socioeconomic status differences are then described. Finally, the regression analyses are delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

The Sentence Completion instrument was factored into 10 factors in both samples. The factor analysis results for the first sample are presented in Table 1. The factors were generally composed of aspects of the coping styles, coping effectiveness and lack of negative affect for each behavioral area, separately. Thus, five of the factors would be titled coping with aggression, authority, anxiety, interpersonal relations and task achievement. The other factors included attitudes toward the different areas of life, and certain sub-aspects of the coping skill in the five areas of behavior.

The factor analysis results for the second sample are presented in Table 2. The variables in this sample also clustered according to the five behavioral areas: aggression, authority, anxiety, interpersonal relations, and task achievement.

The comparison of the factor structures in the 1965 and 1968 samples is presented in Table 3. This comparison presents only those factors that were closely similar. In both English samples, five factors that corresponded to the five behavior areas were highly similar. This evidence indicates a stable "English" construct system at age 10, that defined coping skills in the five areas, separately.

Social Attitudes Inventory

The results of the 1963 Social Attitudes Inventory (I) administered to the first sample is presented in Table 5. The instrument reduced to two factors, the first of which was good coping and the second, defensive responding.

The factor analysis of the 1965 Social Attitudes Inventory (III), an entirely different questionnaire, is presented in Table 6. The analysis resulted in one general factor that may be called effective coping behavior, across all five behavior areas.

No factor comparison was made since different instruments were administered in 1965 and 1968.

Occupational Values

The Occupational Values instrument factored into six factors in both samples. The results for the first sample are presented in Table 7 and the second sample results are presented in Table 8.

The factor comparison of these two samples is presented in Table 9. This table shows that 3 of the 6 factors were similar in both samples, having a similarity cosine of .80 or better. In Table 10 the specific item content of the similar factors is presented. These results indicate that the factor structures of the two samples were approximately similar, but not identical at this age level.

SUMMARY OF FACTOR COMPARISON ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments which were administered to both samples. Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 in Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation. There are two types of designations, depending on the degree of correspondence between the two factors across samples. If the factor comparison resulted in a Relate value of .9 or better, they were called "Identical" factors and given a Roman numeral designation. For example, the first Sentence Completion factor C(SC)1 received a Roman numeral I. The corresponding factor in Stage III, C(SC)2, also received the Roman numeral designation "I."

If the factors were not identical but similar (a comparison value of .80 to .90), then these factors received an alphabetic designation and were called "similar" factors. For example, in Stage I, OVAL 12 is designated A, corresponding to OVAL 11 in Stage III.

To summarize, Table 11 presents a summary of the factor comparisons indicating those factors that were either identical or similar across samples. In the England 10 year old sample, five of the ten Sentence Completion factors were identical across both samples, and 3 of the 6 Occupational Values factors were similar. These results indicate that the factor structures across the two samples were, in general, quite similar. This stability of factor structures across samples is evidence that the coping and motivation patterns represented by these factors are likely to remain somewhat stable in the English 10 year old student population.

SEX DIFFERENCES

In the Stage I English 10 year old sample, males tended to report that they were more effective at coping with anxiety, authority, and interpersonal relations than did females (Table 12). Females more than males reported more positive attitude towards authority, interpersonal relations and task achievement. Females reported a positive affect toward task achievement, whereas males reported a neutral affect toward task achievement. Females more than males valued pleasant surroundings and associates, intellectual stimulation, altruism, and management rather than valuing following their father's occupation, prestige or economic returns.

In the second sample of English 10 year olds, females reported better coping than males with aggression and authority (Table 13). Females more than males reported valuing intellectual stimulation, self-satisfaction, security, altruism, pleasant associates, and success rather than prestige, economic returns or creativity. Males more than females valued management and following their father's occupation rather than esthetics. In general, females' self-report of coping was more positive than males.

Comparing the two samples, there was only one identical factor, coping with authority, that evidenced sex differences in both samples; but the difference was opposite in the two samples.

In the Occupational Values there was one consistent sex difference across samples, with females more than males valuing intellectual stimulation. There were relatively few stable sex differences across both samples.

SOCIOECONOMIC DIFFERENCES

In the first sample of English 10 year olds there were four significant socioeconomic differences (Table 14). In coping behavior, middle-class children reported coping more effectively than lower-class students with aggression and authority. Lower-class children valued management and success more than middle-class children. Lower-class children also reported more defensive behavior than middle-class children.

In the second sample there was only one significant socioeconomic difference, with lower class valuing success and not wishing to follow in their father's occupation, more than middle-class children (Table 15). Across both samples the only consistent SES difference was the lower class valuing of success more than the middle class.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

In the first sample of English students (Table 16a and Table 16b) children who scored high in reading achievement coped well with task achievement and did not report a lot of defensive behavior. They tended to value self-satisfaction, security and independence and did not value esthetics or prestige. They had both high educational and occupational aspirations. In addition, these students coped well with aggression and authority. These students also valued altruism and management as opposed to external rewards. Aptitude was a significant predictor of reading achievement. The BRS was not a significant predictor.

In the second sample of English students, good readers lacked depressive affect and did not cope well with aggression. They handled authority well and had high educational and occupational aspirations. These students valued independence, surroundings and associates. The aptitude measure was a significant predictor, but the peer Behavior Rating Scale was not significantly related to reading achievement.

In comparing the two samples, there were only two identical factors that showed predictive power in both samples, and both of these were predictive in the opposite direction. Thus, coping with aggression was positively related to reading achievement in the first sample, but negatively correlated in the second sample. The aspirations and the aptitude measures were similar across both samples. This indicates that there was little similarity among the coping predictors, but strong similarity in the motivation and aptitude measures, as factors in reading achievement.

Math Achievement

In the first sample (Tables 18a and 18b) of English 10 year olds, students who scored high in math coped well with authority (SC). They did not report coping well, in general, when asked directly,however (SAI). These students valued self-satisfaction and security rather than esthetics and prestige. High occupational and educational aspirations were characteristic of these students, as were higher Aptitude and Behavior Rating scores. In addition to these predictive indices, the students coped well with task achievement, and valued altruism and management. Self-reports of defensive behavior were negatively correlated with math achievement.

In the second sample, students who had high math achievement scores reported coping well with all behavior areas, had positive affect on anxiety items and lacked depressive affect. These students also coped well with interpersonal relations, and had high educational aspirations. Aptitude and the Behavior Rating Scale were related to math achievement. In addition to these predictive measures, high occupational aspirations and coping with authority were also correlated with math achievement. Students who wished to follow their father's occupation and valued management rather than success or esthetics did well in math.

In comparing the samples, the coping and occupational values factors that predicted math achievement were different in the two samples. The educational and occupational aspiration measures, and the aptitude and behavior rating measures showed similar predictive patterns in both samples.

Grade Point Average

Students who received high grades in the first sample of English 10 year olds did not report defensive behavior (Tables 20a and 20b). They coped well with task achievement and valued independence. They also had high occupational aspirations. The aptitude measure and the BRS were also correlated with students' grade point average. Additional factors that correlated with grades were high educational aspirations, and coping with interpersonal relations. These students valued altruism, management, self-satisfaction, and security rather than prestige, esthetics or economic rewards.

In the second sample, students who received high grades lacked depressive affect and reported good coping on the self-report measure. These students had high educational aspirations, high aptitude and high peer ratings. Additional factors that correlated with grades were good coping in interpersonal relationships and having high occupational aspirations. Comparison of these two samples showed many differences in the particular coping and occupational value factors that predicted grade point average. The aspiration measures, aptitude, and BRS showed consistently similar patterns.

PERCENT OF VARIANCE SUMMARY

In addition to examining the predictive factors in each sample, it is necessary to examine the percent of variance for a complete picture. The individual predictors did account for a substantial amount of achievement variance in each of the samples. The total amount of variance accounted for by the aptitude and coping/motivation factors ranged from 33% to 50% of the achievement variance, indicating that these measures were substantially related to school success. The unique contribution of the coping/motivation instruments accounted for 10-20% of achievement variance, except for GPA in the first sample. In general, the coping/motivation measures had substantial predictive validity in these English 10 year old samples.

Table 1

STAGE I

SENTENCE COMPLETION

ENGLAND - 10 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Attitude - Authority	-.092	-.011	.016	-.036	.195	.094	.146	.660*	-.111	.143
40 Att. - Interpersonal Relations	.102	.080	.073	.036	.001	.003	-.049	.715*	.070	-.093
41 Att. - Task Achievement	.047	.032	.102	-.068	.106	.100	.083	.559*	-.104	.225
43 Aggression - Stance	.039	.840*	.037	-.182	.123	.130	.252	-.043	.003	.055
44 Aggression - Engagement	-.006	.675*	.041	-.295	.137	.174	.286	-.088	-.053	.054
45 Aggression - Coping Eff.	.073	.946*	.043	.094	.001	.013	-.018	.025	.030	.035
46 Aggression - Neg. Affect	-.119	-.882*	-.025	-.243	.053	.060	.151	-.109	-.037	.032
47 Aggression - Pos. Affect	.119	.882*	.025	.243	-.053	-.060	-.151	.109	.037	-.032
48 Authority - Stance	.111	.131	.009	.127	.060	.102	.748*	.178	.105	.213
49 Authority - Engagement	.045	.012	-.006	.329	.089	-.097	.565*	.094	.083	-.073
50 Authority - Coping Eff.	.117	.114	.077	.743*	.098	.141	.479*	.157	.006	.056
51 Authority - Negative Aff.	-.126	-.051	-.127	-.932*	-.060	-.056	-.058	.041	-.023	.016
52 Authority - Neutral Aff.	.126	.066	.120	.936*	.082	.067	-.016	-.038	.046	.034
53 Authority - Pos. Affect	-.023	-.106	.016	-.195	-.152	-.081	.461*	-.014	-.145	-.314
54 Anxiety - Stance	.928*	.093	.016	.019	.040	.046	.046	.029	.003	.024
55 Anxiety - Engagement	.757*	.027	-.044	-.001	.050	-.029	.007	.042	-.063	-.000
56 Anxiety - Coping Eff.	.917*	.091	.071	.029	.044	.074	.051	.014	.039	-.002
57 Anxiety - Negative Aff.	-.893*	-.039	-.107	-.132	-.064	-.065	-.010	.040	-.046	.029
58 Anxiety - Neutral Aff.	.893*	.039	.107	.132	.064	.065	.010	-.040	.046	-.029

STAGE I

SENTENCE COMPLETION

ENGLAND - 10 Year Olds (continued)	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	.083	.020	-.031	.070	.020	.032	.018	-.063	.860*	.008
60 IPR - Engagement	-.030	.040	.252	.010	.001	.034	.054	.084	.794*	-.026
61 IPR - Coping Eff.	.060	.096	.890*	.048	.069	.042	.101	.113	.160	.049
62 IPR - Negative Affect	-.102	-.028	-.964*	-.115	-.036	-.060	.038	-.015	-.017	-.011
63 IPR - Neutral Affect	.098	.028	.962*	.120	.035	.049	-.034	.042	.026	.003
64 IPR - Positive Affect	.068	-.000	.039	-.090	.018	.198	-.072	-.459*	-.155	.153
65 Task Achievement - Stance	.107	.021	.073	.084	.934*	.095	.029	.124	-.004	.024
66 Task Ach. - Engagement	.073	.038	.013	.022	.904*	-.080	.030	.055	.022	-.175
67 Task Ach. - Coping Eff.	.137	.045	.065	.119	.863*	.200	.006	.107	.009	.230
68 Task Ach. - Negative Aff.	-.161	-.107	-.129	-.147	-.136	-.888*	.001	-.045	-.052	-.048
69 Task Ach. - Neutral Aff.	.145	.055	.062	.100	.096	.795*	-.010	-.007	.058	-.552*
70 Task Ach. - Pos. Affect	-.022	.048	.064	.029	.020	-.118	.014	.067	-.023	.906*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

ENGLAND - 10 Year Olds	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.269	.016	.166	.223	-.044	-.019	.287	.049	.411*	-.170
65 T.A. - Stance	.881*	.061	.018	.165	.160	.116	.037	-.034	.066	-.045
66 T.A. - Engagement	.876*	.067	-.025	.096	.099	.164	-.014	-.011	-.004	.013
67 T.A. - Aid/Advice	.850*	.108	-.051	.105	.053	.086	-.034	-.115	-.040	.108
68 T.A. - Coping Effect	.795*	-.030	-.018	.212	.155	.151	.169	-.029	.115	.054
69 T.A. - Hostile Affect	-.594*	-.088	-.053	.036	.103	.324	-.224	-.205	-.077	-.161
70 T.A. - Depressive Aff.	-.306	-.166	-.026	-.046	-.180	.158	.481*	.158	.080	.235
71 T.A. - Neutral Aff.	.721*	.220	.049	-.042	.024	-.377	-.206	.102	-.106	-.061
72 T.A. - Positive Aff.	-.257	-.171	.012	.090	-.034	.111	.347	.053	.315	.173
73 Interpersonal Relations Attitude	-.022	-.158	.048	.313	.132	-.038	-.003	.344	.060	.198
74 I.R. - Stance	.072	-.008	-.018	.006	.860*	.025	-.183	-.080	.048	.007
75 I.R. - Engagement	.119	.041	.095	.104	.944*	-.009	.130	.083	-.000	-.018
76 I.R. - Aid/Advice	.118	.045	.071	.112	.946*	.013	.102	.072	-.001	-.004
77 I.R. - Coping Effect	.165	.071	.208	.133	.767*	-.023	.444*	-.100	-.044	-.061
78 I.R. - Hostile Affect	-.102	-.115	-.327	-.137	-.257	.116	-.672*	.025	.143	.007
79 I.R. - Depressive Aff.	-.057	.033	.070	.153	-.035	-.142	-.066	.669*	.020	.031
80 I.R. - Neutral Aff.	.142	.107	.270	.070	.283	-.081	.687*	-.360	-.133	.014
81 I.R. - Positive Aff.	-.079	-.091	.053	-.133	-.098	.294	-.007	-.172	-.099	-.249

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

ENGLAND - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.139	.113	.086	.369	.136	.247	.263	.233	.249	-.138
83 Auth. - Stance	.062	.017	.017	.807*	.099	.008	-.010	-.124	.142	.218
84 Auth. - Engagement	.149	.021	.001	.893*	.039	-.014	.011	.115	.006	-.033
85 Auth. - Aid/Advice	.134	-.005	.030	.919*	.066	-.007	.065	.056	.043	-.022
86 Auth. - Coping Eff.	.155	.058	.173	.832*	.048	.030	.083	-.061	-.352	-.158
87 Auth. - Hostile Aff.	-.087	-.094	-.269	-.360	.029	-.182	-.230	-.190	.590*	.303
88 Auth. - Depress. Aff.	.074	.015	-.017	-.230	-.015	.206	.158	.736*	-.108	-.090
89 Auth. - Neutral Aff.	.027	.083	.254	.500*	-.008	-.003	.102	-.388	-.463*	-.214
90 Auth. - Positive Aff.	-.058	-.103	.071	.119	-.093	.137	-.168	-.110	.060	.072
91 Anxiety - Attitude	.039	-.022	.050	.024	.017	.058	-.065	.006	.517*	-.134
92 Anx. - Stance	.137	.821*	.013	.008	.022	.079	-.096	-.098	-.083	.309
93 Anx. - Engagement	.035	.887*	.060	.050	.085	-.019	.106	-.005	-.086	-.062
94 Anx. - Aid/Advice	.033	.863*	.028	.005	.086	-.038	.104	.035	-.099	-.095
95 Anx. - Coping Eff.	.082	.892*	.109	.065	-.002	.078	.105	.003	-.084	.161
96 Anx. - Hostile Aff.	-.112	-.333	-.128	-.102	-.003	-.035	-.477*	-.183	-.012	.110
97 Anx. - Depressive Aff.	-.057	-.630*	-.017	.087	.065	-.042	.272	.075	-.141	-.155
98 Anx. - Neutral Aff.	.091	.755*	.107	.021	-.021	-.030	.147	.079	.187	-.245
99 Anx. - Positive Aff.	.121	.112	.020	-.029	-.075	.095	.018	.014	-.154	.733*

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

ENGLAND - 10 Year Olds

Item	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	.185	.093	.024	.091	.033	.721*	-.082	.027	.070	.091
101 Agg. - Engagement	-.033	.048	.715*	-.032	.031	.564*	.031	.114	.027	.112
102 Agg. - Aid/Advice	-.036	.066	.699*	-.026	.044	.556*	.021	.096	.004	.141
103 Agg. - Coping Effect	-.006	.077	.916*	-.090	.063	.065	.138	.001	.027	-.006
104 Agg. - Hostile Aff.	.019	-.062	-.907*	-.107	-.080	.158	-.077	-.023	.055	.016
105 Agg. - Depressive Aff.	-.192	-.179	.032	.053	.033	-.287	-.105	.260	-.299	.234
106 Agg. - Neutral Aff.	.044	.121	.903*	.090	.069	-.065	.112	.062	.043	-.092
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR ENGLAND 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

ENGLAND	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	3	3	7	4	4	5	1
64 Task Achievement-Attitude										
65 TA - Stance									.93	.88
66 TA - Engagement									.90	.88
*67 TA - Aid/Advice										.85
68 TA - Coping Eff.									.86	.80
**69 TA - Hostile Aff.									(-.14)	-.59
**70 TA - Depress. Aff.										(-.31)
71 TA - Neutral Aff.									(.10)	.72
72 TA - Positive Aff.										
73 Interpersonal Relations - Attitude										
74 IPR - Stance										
75 IPR - Engagement										
*76 IPR - Aid/Advice										
77 IPR - Coping Eff.					.89	.44				
**78 IPR - Hostile Aff.					-.96	-.67				
**79 IPR - Depress. Aff.						(.07)				
80 IPR - Neutral Aff.					.96	.69				
81 IPR - Positive Aff.										

ENGLAND	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	3	3	7	4	4	5	1
82 Authority - Attitude										
83 Auth. - Stance							.75	.81		
84 Auth. - Engagement							.57	.89		
*85 Auth. - Aid/Advice								.92		
86 Auth. - Coping Eff.							.48	.83		
**87 Auth. - Hostile Aff.										
**88 Auth. - Depress. Aff.										
89 Auth. - Neutral Aff.							(-.02)	.50		
90 Auth. - Positive Aff.							.46	(.12)		
*91 Anxiety - Attitude										
92 Anx. - Stance	.93	.82								
93 Anx. - Engagement	.76	.89								
*94 Anx. - Aid/Advice		.86								
95 Anx. - Coping Eff.	.92	.89								
**96 Anx. - Hostile Aff.	-.89	(-.33)								
**97 Anx. - Depressive Aff.		-.63								
98 Anx. - Neutral Aff.	.89	.76								
*99 Anx. - Positive Aff.										

ENGLAND	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	3	3	7	4	4	5	1
100 Aggression - Stance			.84	(.02)						
101 Agg. - Engagement			.68	.72						
*102 Agg. - Aid/Advice				.70						
103 Agg. - Coping Eff.			.95	.92						
**104 Agg. - Hostile Aff.			-.88	-.91						
**105 Agg. - Depress. Aff.				(.03)						
*106 Agg. - Neutral Aff.				.90						
107 Agg. - Positive Aff.			.88							

---

* - This variable was only present in the Stage III instrument.

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable "Negative Affect."

Table 4

STAGE I

OCCUPATIONAL VALUES

ENGLAND - 10 YEAR OLDS Item		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14	Altruism	.034	.007	.821*	.043	-.015	-.192
15	Esthetics	.168	-.091	.065	-.628*	-.315	-.171
16	Independence	.243	.026	.021	-.106	.072	.768*
17	Management	-.189	-.142	.536*	-.168	.418*	.077
18	Success	-.026	-.000	-.055	.135	.753*	.026
19	Self-Satisfaction	.288	.124	.296	.520*	.289	-.165
20	Intellectual Stimulation	-.193	.812*	.128	.053	.027	-.101
21	Creativity	-.642*	.083	-.096	-.031	-.370	-.038
22	Security	.186	-.118	-.013	.700*	-.161	-.249
23	Prestige	-.190	-.080	-.478*	-.498*	.030	-.384
24	Economic Returns	-.086	-.309	-.652*	-.099	.209	-.253
25	Surroundings	.669*	-.050	-.177	.142	-.079	.109
26	Associates	.663*	-.009	.146	.006	-.264	.110
27	Variety	.002	.821*	-.041	.030	-.099	.194
28	Follow Father	-.398*	-.525*	-.166	.183	-.228	.371

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

ENGLAND - 10 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.296	-.046	-.130	.661*	.194	-.181
15 Esthetics	.077	-.076	-.161	-.097	-.703*	.121
16 Independence	.018	-.317	.488*	.069	.273	.385
17 Management	-.291	.050	-.256	.071	.667*	.086
18 Success	-.005	.085	-.151	-.166	.073	.794*
19 Self-Satisfaction	.099	.764*	.018	.065	.024	.079
20 Intellectual Stimulation	.762*	.040	-.120	-.131	-.170	-.101
21 Creativity	.160	-.299	-.113	-.771*	.010	-.093
22 Security	-.010	.799*	.000	.120	.066	.012
23 Prestige	-.501*	-.363	-.323	.136	-.388	-.071
24 Economic Returns	-.510*	-.410*	-.008	-.019	-.050	.003
25 Surroundings	-.073	-.002	.792*	-.176	-.096	-.062
26 Associates	-.052	.168	.640*	.416*	.036	-.053
27 Variety	.677*	-.099	-.045	.257	-.042	.213
28 Follow Father	-.139	-.087	-.187	-.176	.410*	-.672*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR ENGLAND 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	-.14	.27	.73	.48	-.30	.23
12	.86*	.01	-.02	-.12	-.32	.39
13	.35	.17	-.25	.75	.44	-.19
14	.11	.83*	.15	-.41	.32	-.11
15	-.28	.11	-.27	.05	.30	.86*
16	.21	-.45	.55	-.17	.65	.08

---

* Similar factors
** Identical factors

Table 7

ITEM COMPARISON FOR ENGLAND 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

ENGLAND	A		B		C					
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	12	11	14	12	15	16				
14 Altruism										
15 Esthetics			-.63	(-.08)						
16 Independence										
17 Management					.42	(.09)				
18 Success					.75	.79				
19 Self-Satisfaction			.52	.76						
20 Intellectual Stim.	.81	.76								
21 Creativity										
22 Security			.70	.80						
23 Prestige	(-.08)	-.50	-.50	(-.36)						
24 Economic Returns	(-.31)	-.51	(-.10)	-.41						
25 Surroundings										
26 Associates										
27 Variety	.82	.68								
28 Follow Father	-.53	(-.14)			(-.23)	-.67				

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were used in the unit weighted scores, but load significantly in one country.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

ENGLAND - 10 Year Olds	Loadings Factor 17	Factor 18
Sub-Scores		
1 Active Coping	.791*	-.001
2 Passive Coping	.839*	.033
3 Active Defensive	-.169	.814*
4 Passive Defensive	.218	.788*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

ENGLAND - 10 Year Olds Sub-Scores	Factor Loading Factor 17
37 Task Achievement	.565*
38 Authority	.724*
39 Aggression	.659*
40 Interpersonal Relations	.711*
41 Anxiety	.622*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

ENGLAND - 10 Year Olds

New Factor Designation	COMMON FACTORS Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1*	2*	Copes with Anxiety
II	C(SC)	2	3	Copes with Aggression
III	C(SC)	3	7	Copes with Interpersonal Relations
IV	C(SC)	7	4	Copes with Authority
V	C(SC)	5	1	Copes with Task Achievement
A	OVAL	12	11	Values Intellectual Stimulation, Variety (and does not value Following Father's occupation, Prestige, or Economic Returns).
B	OVAL	14	12	Values Self-Satisfaction and Security (Does not value Economic Returns, Esthetics, or Prestige).
C	OVAL	15	16	Values Success (and does not value Following Father's occupation; values Management.

UNIQUE FACTORS Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
C(SC)	6	-	Neutral, not negative Affect toward Task Achievement.
C(SC)	4	-	Copes effectively with Authority with Neutral not Negative Affect.
C(SC)	8	-	Positive attitude toward Authority, Interpersonal Relations, Task Achievement without Positive Affect toward Interpersonal Relations.
C(SC)	9	-	Copes with Interpersonal Relations via Stance and Engagement.
C(SC)	10	-	Positive, not neutral Affect toward Task Achievement.
OVAL	11	-	Values Surroundings and Associates and does not value Following Father's occupation or Creativity.
OVAL	13	-	Values Altruism and Management; does not value Prestige or Economic Returns.
OVAL	16	-	Values Intellectual Stimulation
C(SC)	-	5	Copes effectively with Interpersonal Relations via Stance, Engagement, and does not seek Aid.
C(SC)	-	6	Copes with Aggression via Stance, Engagement and does not seek Aid.
C(SC)	-	8	Depressive Affect toward Authority and Interpersonal Relations.
C(SC)	-	9	Positive attitude toward Task Achievement and Anxiety with hostile, not neutral Affect toward Authority.
C(SC)	-	10	Positive Affect toward Anxiety
OVAL	-	13	Values Independence, Surroundings, and Associates.
OVAL	-	14	Values Altruism and Associates and does not value Creativity.
OVAL	-	15	Values Management, and Following Father's occupation; does not value Esthetics.

Table 12

SIGNIFICANT SEX DIFFERENCES*

ENGLAND - 10 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with neutral, not negative Affect.	$p < .004$
C(SC)4	F < M	Copes effectively with Authority with neutral, not negative Affect.	$p < .003$
C(SC)6	F < M	Neutral, not negative Affect toward Task Achievement.	$p < .047$
C(SC)8	F > M	Positive attitude toward Authority, Interpersonal Relations and Task Achievement without positive Affect toward Interpersonal Relations.	$p < .001$
C(SC)9	F < M	Copes with Interpersonal Relations via Stance and Engagement.	$p < .039$
C(SC)10	F > M	Positive, not neutral Affect toward Task Achievement.	$p < .029$
OVAL 11	F > M	Values Surroundings and Associates; doesn't value Creativity and doesn't Follow Father.	$p < .001$
[s]OVAL 12-A	F > M	Values Intellectual Stimulation and Variety; doesn't Follow Father.	$p < .001$
OVAL 13	F > M	Values Altruism and Management; doesn't value Prestige and Economic Returns.	$p < .001$

---

* 9/18 (50%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The Sex difference on this factor is similar to one in the other sample

Table 13

SIGNIFICANT SEX DIFFERENCES*

ENGLAND - 10 Year Olds - Stage III

			Probability Level
C(SC)3-II	F > M**	Copes effectively with Aggression	$p < .004$
C(SC)4-IV	F > M	Copes effectively with Authority	$p < .008$
[s]OVAL 11-A	F > M	Values Intellectual Stimulation and Variety; doesn't value Prestige and Economic Returns.	$p < .05$
OVAL 12-B	F > M	Values Self-Satisfaction and Security; doesn't value Economic Returns.	$p < .015$
OVAL 14	F > M	Values Altruism and Associates; doesn't value Creativity.	$p < .001$
OVAL 15	F < M	Values Management and Follows Father; doesn't value Esthetics.	$p < .001$
OVAL 16-C	F > M	Values Success; doesn't Follow Father.	$p < .006$
[n]S(SAI)17	F > M	Copes effectively	$p < .002$

---

* 8/17 (47%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = A similar predictor across samples

[n] = No comparable instrument in the other sample

Table 14

SIGNIFICANT SES DIFFERENCES*

ENGLAND - 10 Year Olds - Stage I

			Probability Level
C(SC)2-II	L < M**	Copes effectively with Aggression via Stance and Engagement with positive, not negative Affect.	$p < .042$
C(SC)7 -IV	L < M	Copes effectively with Authority via Stance and Engagement with positive. Affect.	$p < .004$
[s]OVAL 15-C	L > M	Values Management and Success.	$p < .046$
[n]C(SAI)18	L > M	Self-Report of defensive behavior.	$p < .043$

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M - Middle Class

[s] = A similar predictor across samples

[n] = No comparable instrument in the other sample

Table 15

SIGNIFICANT SES DIFFERENCES*

ENGLAND - 10 Year Olds - Stage III

			Probability Level
[s]OVAL 16-C	L > M**	Values Success; doesn't Follow Father.	$p < .001$

---

* 1/17 (6%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = A similar predictor across samples

Table 16a.

Stage I

REGRESSION ANALYSIS

ENGLAND - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)18	10.89	.001	.17	.03	.03
C(SC)5-V	4.02	.046	.20	.04	.01
OVAL 14-B	11.13	.001	.27	.07	.03
OVAL 16	3.88	.050	.29	.08	.01
[i] OCC ASP	38.18	.001	.42	.17	.09
[i] ED ASP	20.94	.001	.47	.22	.05
[i] RAVEN	92.75	.001	.62	.39	.17
BRS	2.75	.098 (NS)	.63	.39	--

Additional Explanatory Variables:

	pr	p	r	p
C(SC)2-II			.11	.05
[i] C(SC)7-IV			.12	.05
OVAL 13			.14	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

[n]-C(SAI)18* = Does not show defensive behavior
C(SC)5-V = Copes effectively with Task Achievement
OVAL 14-B = Values Self-Satisfaction and Security; does not value Esthetics or Prestige
OVAL 16 = Values Independence
[i] OCC ASP = Occupational Aspiration
[i] ED ASP = Educational Aspiration
[i] RAVEN = Raven Progressive Matrices
BRS = Behavior Rating Scales

Additional Explanatory Variables:

C(SC)2-II = Copes effectively with Aggression
[i]C(SC)7-IV = Copes effectively with Authority
OVAL 13 = Values Altruism and Management; does not value Prestige or Economic Returns

---

[n] = No comparable instrument in the other sample.

[i] = An identical predictor or explanatory factor across samples.

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

ENGLAND - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)8	15.88	.001	.34	.12	.12
-C(SC)6-V	7.20	.01	.41	.17	.05
[i]C(SC)4-IV	4.25	.04	.45	.20	.03
[i]ED ASP	18.27	.001	.56	.31	.11
[i]OCC ASP	6.65	.01	.59	.35	.04
[i]RAVEN	26.91	.001	.69	.47	.13
BRS	2.53	NS			

Additional Explanatory Variables:

	pr	p	r	p
C(SC)3-II			-.25	.05
C(SC)9	-.19	.04		
OVAL 13	.19	.05		

---

[i] = An identical predictor or explanatory factor across samples

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

-C(SC)8* = Does not show Depressive Affect toward Interpersonal Relations or Authority.
-C(SC)6-V = Does not cope with Aggression
[i]C(SC)4-IV = Copes effectively with Authority
[i]ED ASP = Educational Aspiration
[i]OCC ASP = Occupational Aspiration
[i]RAVEN = Raven Progressive Matrices
BRS = Behavior Rating Scales

Additional Explanatory Variables:

-C(SC)3-II = Does not cope effectively with Aggression
-C(SC)9 = Lack of Positive Attitude toward Task Achievement and Anxiety and Neutral, not Hostile Affect toward Authority.
OVAL 13 = Values Independence, Surroundings and Associates

---

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

ENGLAND - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[i] C(SC)7-IV	6.65	.010	.14	.02	.02
[n] -C(SAI)17	7.26	.007	.20	.04	.02
OVAL 14-B	19.74	.001	.30	.09	.05
[i] OCC ASP	34.11	.001	.41	.17	.08
[i] ED ASP	10.50	.001	.44	.20	.02
[i] RAVEN	111.81	.001	.63	.39	.20
[i] BRS	9.64	.002	.64	.41	.02

Additional Explanatory Variables:

	pr	p	r	p
C(SC)5-V			.11	.05
OVAL 13			.11	.05
[n] -C(SAI)18			-.11	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

[i]C(SC)7-IV = Copes effectively with Authority

[n]-C(SAI)17* = Does not show good coping

OVAL 14-B = Values Self-Satisfaction and Security; does not value Esthetics or Prestige

[i]OCC ASP = Occupational Aspiration

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scales

Additional Explanatory Variables:

C(SC)5-V = Copes effectively with Task Achievement

OVAL 13 = Values Altruism and Management; does not value Prestige or Economic Returns

[n]-C(SAI)18 = Does not report Defensive Behavior

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

ENGLAND - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n] C(SAI)17	12.13	.001	.31	.09	.09
-C(SC)8	6.30	.01	.37	.14	.05
C(SC)10	4.56	.04	.41	.17	.03
C(SC)5	4.35	.04	.45	.20	.03
[i] ED ASP	17.52	.001	.56	.31	.11
[i] RAVEN	43.11	.001	.71	.50	.19
[i] BRS	7.32	.01	.73	.53	.03

Additional Explanatory Variables:

	pr	p	r	p
[i] OCC ASP			.29	.05
[i] C(SC)4-IV			.28	.05
- OVAL 16-C	-.20	.03		
OVAL 15	.19	.04		

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

[n] C(SAI)17 = Copes effectively

- C(SC)8* = Does not show Depressive Affect toward Interpersonal Relations and Authority

C(SC)10 = Shows Positive Affect toward Anxiety

C(SC)5 = Copes effectively with Interpersonal Relations

[i] ED ASP = Educational Aspiration

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scales

Additional Explanatory Variables:

[i] OCC ASP = Occupational aspiration

[i] C(SC)4-IV = Copes effectively with Authority

-OVAL 16-C = Does not value Success; does value Following Father's Occupation.

OVAL 15 = Values Management, Following Father's Occupation; does not value Esthetics.

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

ENGLAND - 10 Year Olds — CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)18	8.57	.004	.15	.02	.02
C(SC)5-V	4.65	.032	.19	.04	.01
OVAL 16	10.41	.001	.25	.06	.03
[i] OCC ASP	18.09	.001	.33	.11	.05
[i] RAVEN	129.94	.001	.60	.35	.24
[i] BRS	3.66	.057	.60	.36	.01

Additional Explanatory Variables:

	pr	p	r	p
C(SC)3-III			.12	.05
OVAL 13			.14	.05
OVAL 14-B			.20	.05
[i]ED ASP	.16	.003		

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

[n]-C(SAI)18* = Does not show Defensive Behavior

C(SC)5-V = Copes effectively with Task Achievement

OVAL 16 = Values Independence

[i] OCC ASP = Occupational Aspiration

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scales

Additional Explanatory Variables:

C(SC)3-III = Copes effectively with Interpersonal Relations

OVAL 13 = Values Altruism and Management; does not value Prestige or Economic Returns

OVAL 14-B = Values Self-Satisfaction and Security; does not value Esthetics or Prestige

[i] ED ASP = Educational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

ENGLAND - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)8	13.06	.001	.32	.10	.10
[n] C(SAI)17	5.87	.02	.38	.14	.04
[i] ED ASP	10.69	.001	.46	.22	.07
[i] RAVEN	26.07	.001	.60	.36	.15
[i] BRS	6.13	.02	.63	.39	.03

Additional Explanatory Variables:

	pr	p	r	p
[i] OCC ASP			.25	.05
C(SC)5			.19	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

-C(SC)8* = Does not show Depressive Affect toward Interpersonal Relations and Authority

[n]C(SAI)17 = Copes effectively

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scales

Additional Explanatory Variables:

[i]OCC ASP = Occupational Aspiration

C(SC)5 = Copes effectively with Interpersonal Relations

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

ENGLAND - 10 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	16.6%	19.7%	24.3%
Coping/Motivation (unique)	12.3%	9.8%	3.8%
Total	38.6%	39.4%	35.4%
ENGLAND - 10 Year Olds - Stage III			
Aptitude (unique)	12.6%	19.0%	14.5%
Coping/Motivation (unique)	20.1%	10.7%	9.7%
Total	47.3%	50.0%	36.0%

Table 23

CORRELATIONS AMONG THE CRITERIA

ENGLAND - 10 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Reading			
Math	.62		.60
GPA	.63		
ENGLAND - 10 Year Olds - Stage III			
Reading			
Math	.64		.65
GPA	.70		

ENGLAND - 14 YEAR OLDS - RESULTS AND DISCUSSION

The results presented in this section provide a detailed picture of the coping patterns that were associated with achievement in English students in both the 1965 (Stage I) and 1968 (Stage III) samples. The results include the factor analysis of the coping/motivation instruments: Sentence Completion, Views of Life, Occupational Values, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of English students. Sex and socioeconomic status differences are next described. Finally, the regression analyses are delineated, in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

The Sentence Completion instrument was analyzed into 10 factors in both samples. The results for the first sample are presented in Table 1. The factors separately represented coping skill in each of five behavior areas. Therefore, five of the factors can be titled coping with aggression, authority, anxiety, interpersonal relations and task achievement. The other factors included attitudes toward the different areas of life and certain sub-aspects of coping skill in the five areas of behavior.

The factor analysis results for the second sample are presented in Table 2. As in the first sample, five of the factors represented coping skill in the areas of aggression, anxiety, authority, interpersonal relations and task achievement. The other factors were sub-aspects of the coping skills.

The comparison of the factor structures appears in Table 3. This table only presents those factors that were closely similar. Although the factor structures could not be analyzed with the RELATE factor comparison program, the item loadings were examined for similarity. Four of the factors were similar across samples. The percentage of corresponding items for these four factors were: 100%, 50%, 75%, and 60%. The factors were coping with anxiety, aggression, task achievement, and authority. Only the factors representing interpersonal relations did not correspond very well. This provides evidence for reasonably stable construct system for the English 14 year olds, across samples.

Occupational Values

The Occupational Values instrument was factor analyzed into 6 factors in both samples. These results are presented in Tables 4 and 5.

The factor comparison of these two samples is presented in Table 6. All six factors showed very close correspondence across both samples, resulting in a RELATE value greater than .90. Table 7 illustrates the item comparison for each of the factors. There was a close correspondence between the factor structures, indicating that there was a stable English pattern for Occupational Values, across samples.

Views of Life

The Views of Life (Table 8) instrument was administered only to the students in the second sample. This instrument factored into eight factors.

Social Attitudes Inventory

The results of the factor analysis for the Stage I Social Attitudes Inventory is presented in Table 9. This instrument was reduced to two factors. The first factor represented good coping behavior and the second factor was defensive behavior.

The factor analysis results for the Stage III Social Attitudes Inventory, an entirely different questionnaire, are illustrated in Table 10. This analysis resulted in one general factor that represented good coping behavior in all five behavior areas.

These factor structures were not compared since they represented different instruments.

SUMMARY OF FACTOR COMPARISON ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made for the Sentence Completion and Occupational Values instruments, which were administered to both samples. Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, in Table 11 the Sentence Completion factor 6 C(SC)6 had no comparable factor in the second sample. If, however, a factor did have a comparable factor in the other sample, it received a new designation. There were two types of designations, depending on the degree of correspondence between the two factors across samples. If the factor comparison resulted in a Relate value of .9 or better, the factors were highly similar. In many cases the factors were almost identical. If the factors were this similar, they were called "Identical" factors and given a Roman numeral designation. For example, in Table 11 the first Sentence Completion factor (C[SC]1) received a Roman numeral I, also, in the other sample there must be another factor to which this one corresponded. In Table 11, the factor that was similar is C[SC]2 which also received a Roman numeral designation "I".

If the factors were not identical but similar (a comparison value of .80 to .90), then these factors received an alphabetic designation and were called "similar" factors. In this sample there were no similar factors.

In this sample, four of the ten Sentence Completion factors and all of the six Occupational Value factors were identical asross samples. This suggests that the underlying structure of the coping/motivation pattern represented by these factors was highly stable.

SEX DIFFERENCES

In the first sample of English 14 year olds (Table 12) there were eleven significant sex differences. Males were more effective than females in coping with anxiety and also tended to be more engaging in interpersonal relations. Females were more effective than males in coping with aggression and also had more positive attitudes toward authority, interpersonal relations, and task achievement. In Occupational Values, females more than males valued pleasant surroundings, associates, intellectual stimulation, independence, variety, altruism, and self-satisfaction rather than prestige, creativity, or economic returns. Males more than females valued management, security, and success rather than esthetics. Males were more likely to want to follow their father's occupation than were females.

In the second sample of English students there were six significant sex differences. There was only one difference in coping style, with males having a more positive attitude toward task achievement than females. In Occupational Values, females valued altruism, self-satisfaction, surroundings, associates, intellectual stimulation, and variety more than males. Males more than females valued success and security rather than esthetics. Males also had a more positive self-concept than females.

In comparing the sex differences across samples there were no consistent differences for coping styles, but four of the six sex differences in Occupational Values were consistent across both samples. For the 14 year old English students there were stable sex differences in the qualities they valued in work environments.

SES DIFFERENCES

In the first sample of English 14 year olds there were only three significant differences due to social class membership. There was only one difference in coping, with lower-class tending to report more good coping than middle-class children. In Occupational Values, lower-class valued success and security rather than esthetics, more than middle-class children. Lower-class children also valued independence more than middle class. Middle-class children were more likely than lower-class students to want to pursue the same occupation as their father.

In the second sample of English 14 year old students, there were six significant effects due to social class membership. Middle-class students were more likely than lower-class students to cope effectively in interpersonal relationships. In the Views of Life, the middle-class reported preferring independent action and self-implementation more than lower-class children. Middle-class more than lower-class children had more internal locus of control. In Occupational Values, lower-class more than middle-class children valued success, security, intellectual stimulation and variety rather than esthetics or following their father's occupation. Middle-class children also valued independence more than lower-class students.

In comparing the results of the two samples there were two identical factors that showed socioeconomic differences. One factor, concerning the value of success versus esthetics, showed lower-class valuing success more than middle-class students. The other factor, valuing independence, went in opposite ways in the two samples. In general, there appeared to be few differences in either of these samples that could be attributed to social class.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

In the first sample of English students, children who did well in reading had lower scores for both defensive and coping behavior, on the SAI. These students reported coping well in interpersonal relations, and valuing independence rather than the desire to follow their father's occupation. They had high educational and occupational aspirations. Aptitude was a potent predictor of achievement; the Behavior Rating Scale was not correlated with reading in the English 14 year old sample.

In the second sample of English students, children who were good readers coped well with task achievement, liked to confront problems, and valued independence. High educational aspirations were correlated with reading, as was aptitude. The Behavior Rating Scale was not predictive of reading achievement. Additional variables associated with reading achievement were high occupational aspirations, cooperativeness and active coping under stress.

In comparing the two samples there was one identical factor that was predictive in both samples: valuing independence. Occupational and educational aspirations, as well as the aptitude measure, were predictors in both samples. The BRS was not predictive of reading achievement in either sample.

Math Achievement

In the first sample of English 14 year olds those students who reported little defensive behavior, and valued independence rather than following their father's occupation, tended to get high math achievement scores. They also had high occupational and educational aspirations. Aptitude scores were correlated with achievement, but the BRS failed to account for any additional variance.

In the second sample of English 14 year olds, those students who received high math achievement scores reported coping well with interpersonal relations. They also reported coping actively under stress, liked to cooperate with others, but lacked a positive self-concept. These students valued independence and had high educational and occupational aspirations. The aptitude measure was predictive of math achievement, but the BRS failed to contribute significantly. Additional variables that were correlated with math achievement were coping with task achievement, coping with interpersonal relations, the lack of depressive affect in interpersonal relations, and lack of coping with anxiety. These students also valued altruism and self-satisfaction rather than prestige and economic returns.

There were no similar predictions by the coping measures or the occupational values measures, across samples. The aspiration measures were similarly predictive across samples, as was the aptitude measure. The BRS failed to be predictive in either sample.

Grade Point Average

In the first sample, those students who received high grades tended to be good at coping with authority. They did not report good coping on the self-report inventory. These students valued success and security rather than esthetics. High occupational and educational aspirations, as well as high aptitude and high peer ratings, were predictive of high grades.

In the second sample, students with high grades coped well in interpersonal relationships, had an internal locus of control and were independent. These students valued intellectual stimulation and variety rather than following their father's occupation. High educational aspirations and aptitude were predictive of grade point average. The BRS was not significantly predictive. Additional variables that correlated with grades were coping with interpersonal relations, occupational aspirations, preferring cooperation, and valuing independence.

In comparing the two samples, the coping and occupational values measures were not similarly predictive across samples. Aptitude and educational aspiration were predictive in both samples. In general, those coping and motivation variables that predicted grades in these two samples were quite different.

PERCENT OF VARIANCE

Table 22 illustrates the information concerning the amount of variance accounted for by the variables. The total amount of variance ranged from 23.5% to 56.2%. In both samples, grades had the least amount of predicted variance. This appeared to be due to the small amount of variance accounted for by the aptitude measure, unlike the case with the other criteria. The unique variance attributable to the coping/motivational measures ranged from 6.8% to 15.3%. In both samples, the coping/motivational measures accounted for the least amount of math achievement variance in comparison to the other criteria. The combination of cognitive, motivational and coping measures was a quite potent predictor of school success.

Table 1

STAGE I

SENTENCE COMPLETION

ENGLAND - 14 Year Olds		Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Attitude - Authority	.051	.049	.127	.099	.049	-.047	.770*	-.067	.182	.033
40	Att. - Interpersonal - Stance	.038	.060	-.020	.006	.021	-.126	.677*	.030	-.008	-.249
41	Att. - Task Achievement	.035	.109	.064	.141	.100	.092	.657*	-.044	-.056	.204
43	Aggression - Stance	.043	.826*	.004	.003	.045	-.091	.110	.074	.042	.134
44	Aggression - Engagement	-.052	.651*	-.041	-.048	-.040	-.170	.242	.072	.058	.248
45	Aggression - Coping Eff.	.071	.953*	.037	.034	.077	.031	.01[illegible]	-.020	.034	-.037
46	Aggression - Neg. Affect	-.060	-.896*	-.110	-.053	-.100	-.070	.035	.084	-.048	.153
47	Aggression - Pos. Affect	.060	.896*	.110	.053	.100	.070	-.035	-.084	.048	-.153
48	Authority - Stance	.067	.108	.112	.113	.124	.063	.131	-.011	.780*	.067
49	Authority - Engagement	.023	.083	.073	-.016	.152	-.017	-.047	.148	.669*	.120
50	Authority - Coping Eff.	.088	.148	.134	.119	.751*	-.007	.186	.003	.466*	.077
51	Authority - Negative Aff.	-.070	-.104	-.082	-.061	-.972*	.040	-.040	-.005	-.078	.011
52	Authority - Neutral Aff.	.068	.105	.081	.058	.971*	-.042	.040	.010	.060	-.087
53	Authority - Pos. Affect	.018	-.017	.009	.032	-.035	.029	.003	-.051	.180	.771*
54	Anxiety - Stance	.916*	.082	.036	.012	.041	.044	.051	-.007	.017	.045
55	Anxiety - Engagement	.736*	.044	-.105	-.068	.018	.045	.073	.024	.047	.047
56	Anxiety - Coping Eff.	.938*	.051	.065	.062	.061	.024	.035	.001	.010	.005
57	Anxiety - Negative Aff.	-.897*	.015	-.052	-.027	-.036	.069	.020	-.048	-.022	.045
58	Anxiety - Neutral Aff.	.897*	-.015	.052	.027	.036	-.069	-.020	.048	.022	-.045

STAGE I

SENTENCE COMPLETION

ENGLAND - 14 Year Olds (continued)		Loadings									
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
59	Interpersonal Relations - Stance	.141	-.017	.082	.045	.004	-.025	-.157	.763*	.100	-.164
60	IPR - Engagement	-.023	-.032	.079	.048	.012	.027	.062	.851*	.034	.091
61	IPR - Coping Eff.	.065	.125	.888*	.113	.002	.008	.114	.166	.068	.041
62	IPR - Negative Affect	-.064	-.105	-.963*	-.074	-.075	.059	-.025	.014	-.062	.029
63	IPR - Neutral Affect	.064	.105	.963*	.074	.075	-.059	.025	-.014	.062	-.029
64	IPR - Positive Affect	.000	.000	-.000	.000	-.000	.000	-.000	-.000	-.000	-.000
65	Task Achievement - Stance	.018	.033	.106	.946*	.028	-.006	.100	.026	.081	.017
66	Task Ach. - Engagement	-.011	.035	.036	.859*	.078	-.043	.033	.080	-.086	.084
67	Task Ach. - Coping Eff.	.050	.033	.099	.930*	.067	.007	.115	-.012	.153	-.090
68	Task Ach. - Neg. Affect	-.131	-.015	-.150	-.228	-.116	.610*	-.230	.049	-.322	.334
69	Task Ach. - Neutral Aff.	.026	.031	.094	.060	.064	-.972*	.088	-.010	.004	-.073
70	Task Ach. - Pos. Affect	.115	-.026	.041	.179	.043	.665*	.140	-.042	.367	-.283

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

ENGLAND - 14 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.311	.059	.108	.151	-.062	.148	-.025	.291	-.145	.414*
65 T.A. - Stance	.862*	.003	.142	.104	-.018	.018	-.025	-.253	-.065	-.030
66 T.A. - Engagement	.874*	.009	.033	-.012	-.006	.144	.017	-.207	.002	.028
67 T.A. - Aid/Advice	.810*	-.015	.043	.032	.039	.166	.041	-.174	-.020	-.021
68 T.A. - Coping Effect	.830*	.009	.175	.116	-.027	.030	.017	-.055	-.027	-.063
69 T.A. - Hostile Affect	-.262	.002	-.169	.010	.096	.032	-.315	.458*	-.120	.045
70 T.A. - Depressive Aff.	-.104	-.037	.021	-.093	-.166	.106	.075	.447*	.373	-.051
71 T.A. - Neutral Aff.	.259	-.035	.011	.069	.020	-.071	.089	-.889*	-.038	.017
72 T.A. - Positive Aff.	-.054	.085	.161	-.058	-.017	.003	.156	.625*	-.084	-.042
73 Interpersonal Relations Attitude	.327	.052	.223	.068	.164	-.055	-.140	.191	-.020	.218
74 I.R. - Stance	-.000	-.046	.097	.799*	-.041	-.135	.170	-.018	-.095	-.041
75 I.R. - Engagement	.154	.079	.120	.927*	.035	.141	.034	.070	.010	.005
76 I.R. - Aid/Advice	.147	.088	.124	.924*	.014	.143	.002	-.083	.012	.003
77 I.R. - Coping Effect	.183	.116	.137	.806*	.073	.417*	.008	.000	-.187	.005
78 I.R. - Hostile Affect	-.199	-.074	-.079	-.330	-.137	-.704*	-.002	-.097	-.058	-.001
79 I.R. - Depressive Aff.	.019	-.026	.020	-.096	-.004	.032	.039	.041	.859*	.089
80 I.R. - Neutral Aff.	.155	.094	.062	.341	.160	.621*	-.042	.059	-.504*	-.110
81 I.R. - Positive Aff.	.015	-.101	-.052	-.008	-.277	-.034	.127	-.016	.088	.369

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

ENGLAND - 14 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.478*	-.014	.295	.183	-.012	-.068	-.087	.231	.112	.181
83 Auth. - Stance	.071	-.105	.626*	.248	.052	-.302	.146	.121	-.012	-.169
84 Auth. - Engagement	.214	.022	.806*	.150	.121	-.147	.043	.038	-.008	-.103
85 Auth. - Aid/Advice	.194	.025	.804*	.165	.112	-.084	.046	.104	.005	-.103
86 Auth. - Coping Eff.	.145	-.010	.904*	.030	.102	.190	-.035	-.056	-.043	.069
87 Auth. - Hostile Aff.	-.053	-.007	-.715*	.085	-.025	-.480*	.069	.041	-.055	-.119
88 Auth. - Depress. Aff.	.261	-.121	-.251	-.079	-.072	.178	.050	.078	.327	.007
89 Auth. - Neutral Aff.	-.046	.061	.788*	-.033	.062	.363	-.095	-.058	-.007	.119
90 Auth. - Positive Aff.	-.258	-.003	.101	-.171	-.077	.217	.093	-.204	-.076	-.108
91 Anxiety - Attitude	.148	.101	.154	.099	.186	.046	.021	.058	-.128	.016
92 Anx. - Stance	-.041	.808*	.084	.025	-.067	.107	.057	.078	-.037	-.291
93 Anx. - Engagement	-.065	.822*	-.070	-.020	.062	.104	.070	-.077	.030	.349
94 Anx. - Aid/Advice	-.091	.794*	-.103	-.057	.008	.106	.099	-.079	.035	.358
95 Anx. - Coping Eff.	.000	.832*	.078	.118	.030	.168	.052	.090	-.027	-.236
96 Anx. - Hostile Aff.	-.206	-.142	-.110	.086	-.241	-.473*	.023	-.079	-.044	.152
97 Anx. - Depressive Aff.	-.051	-.737*	-.005	-.089	-.055	.162	.054	-.079	.121	.278
98 Anx. - Neutral Aff.	.220	.668*	.059	.058	.320	-.079	-.146	.031	-.082	.071
99 Anx. - Positive Aff.	-.031	.144	.044	.136	-.141	.449*	.126	.151	.013	-.670*

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

ENGLAND - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.105	.104	.101	.075	-.403*	.014	.665*	.006	-.142	-.052
101 Agg. - Engagement	-.011	.012	-.059	.108	.452*	-.006	.805*	.023	.034	.037
102 Agg. - Aid/Advice	.014	.009	-.071	.118	.456*	-.029	.801*	-.004	-.026	.045
103 Agg. - Coping Effect	.002	.066	.226	.062	.799*	.099	.213	-.011	.080	-.047
104 Agg. - Hostile Aff.	.016	-.057	-.096	.021	-.929*	-.067	-.032	.057	-.104	.016
105 Agg. - Depressive Aff.	-.042	-.049	-.047	.023	.143	-.034	-.131	-.090	.600*	-.063
106 Agg. - Neutral Aff.	-.004	.072	.111	-.028	.907*	.078	.070	-.033	-.064	.001
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR ENGLAND 14 YEAR OLDS - STAGES I AND III -- SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	5	3	4	4	1	5	3
64 Task Achievement - Attitude										
65 TA - Stance							.95	.86		
66 TA - Engagement							.86	.87		
*67 TA - Aid/Advice								.81		
68 TA - Coping							.93	.83		
**69 TA - Hostile										
**70 TA - Depressive										
71 TA - Positive										
73 Interpersonal Relations - Attitude										
74 IPR - Stance					(.08)	.80				
75 IPR - Engagement					(.08)	.92				
*76 IPR - Aid/Advice					.89	.92				
77 IPR - Coping						.81				
**78 IPR - Hostile					-.96	(-.33)				
**79 IPR - Depressive						(-.10)				
80 IPR - Neutral					.96	(.34)				
81 IPR - Positive										

Table 3
(continued)

ITEM COMPARISON FOR ENGLAND 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	5	3	4	4	1	5	3
82 Authority - Attitude										
83 Auth. - Stance									(.12)	.63
84 Auth. - Engagement									(.15)	.81
*85 Auth. - Aid/Advice										.80
86 Auth. - Coping									.75	.90
**87 Auth. - Hostile									-.97	-.72
**88 Auth. - Depressive										(-.25)
89 Auth. - Neutral									.97	.79
90 Auth. - Positive										
*91 Anxiety - Attitude										
92 Anxiety - Stance	.92	.81								
93 Anxiety - Engagement	.74	.82								
*94 Anxiety - Aid/Advice		.79								
95 Anxiety - Coping	.94	.83								
**96 Anxiety - Hostile	-.90	(-.14)								
**97 Anxiety - Depressive		-.74								
98 Anxeity - Neutral	.90	.67								
*99 Anxiety - Positive										

Table 3
(continued)

ITEM COMPARISON FOR ENGLAND 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	5	3	4	4	1	5	3
100 Aggression - Stance			.83	-.40						
101 Aggression - Engagement			.65	.45						
*102 Aggression - Aid/Advice				.46						
103 Aggression - Coping			.95	.80						
**104 Aggression - Hostile			-.90	-.93						
**105 Aggression - Depressive				(.14)						
*106 Aggression - Neutral				.91						
107 Aggression - Positive			.90							

---

* - This variable was only present in the Stage III instrument

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable "Negative Affect"

Table 4

STAGE I

OCCUPATIONAL VALUES

ENGLAND - 14 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	-.059	.081	.766*	-.061	.113	.263
15	Esthetics	-.129	-.217	-.038	-.657*	.170	-.343
16	Independence	.332	.025	-.135	-.217	.600*	-.014
17	Management	-.122	-.028	.049	.016	-.077	.884*
18	Success	-.263	-.119	-.074	.636*	.286	.031
19	Self-Satisfaction	.170	.035	.728*	.136	-.074	-.216
20	Intellectual Stimulation	-.158	.787*	.118	.036	-.077	-.109
21	Creativity	-.418*	.349	-.417*	-.235	-.022	-.173
22	Security	.219	-.088	.096	.678*	-.127	-.265
23	Prestige	- .543*	-.437*	-.246	-.102	.068	.058
24	Economic Returns	- .185	-.508*	-.499*	.300	.001	.038
25	Surroundings	.752*	-.024	-.055	.107	.056	-.049
26	Associates	.760*	-.109	.123	-.138	.094	-.061
27	Variety	.015	.783*	-.080	-.018	.174	.143
28	Follow Father	.028	-.058	-.137	-.105	-.868*	.072

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

Stage III

OCCUPATIONAL VALUES

ENGLAND - 14 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.700*	-.196	.020	-.012	.385	-.013
15 Esthetics	.040	-.825*	-.038	-.040	-.060	-.015
16 Independence	.018	-.119	-.016	-.012	-.039	.919*
17 Management	.032	-.001	-.032	-.030	.889*	-.045
18 Success	-.056	.704*	-.232	.030	-.081	.021
19 Self-Satisfaction	.569*	.352	.140	-.168	-.061	-.175
20 Intellectual Stimulation	.217	.003	-.164	.740*	-.087	-.261
21 Creativity	-.131	-.071	-.690*	.159	-.250	.002
22 Security	.032	.565*	.250	-.196	.012	-.199
23 Prestige	-.650*	-.168	-.300	-.200	.080	-.217
24 Economic Returns	-.730*	.245	.151	-.165	.081	-.008
25 Surroundings	-.114	.109	.750*	.062	-.183	-.248
26 Associates	.140	-.241	.678*	.073	-.087	.290
27 Variety	.037	-.119	-.024	.807*	-.151	.121
28 Follow Father	.058	-.027	-.173	-.633*	-.364	-.073

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR ENGLAND 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.08	-.09	.97**	.11	-.16	.08
12	.30	-.03	-.14	.90**	-.20	-.22
13	.93**	.09	.01	-.25	.26	.02
14	-.09	.98**	.11	.05	.04	-.15
15	-.01	.13	-.06	.27	.18	.93**
16	-.18	-.12	.14	.23	.91**	-.21

** Identical factors

Table 7

ITEM COMPARISON FOR ENGLAND 14 YEAR OLDS - STAGES I AND III

OCCUPATIONAL VALUES (Factor Loadings)

ENGLAND	VI		VII		VIII		IX		X		XI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	13	12	14	13	11	14	12	15	16	16	15
14 Altruism					.77	.70						
15 Esthetics							-.66	-.83				
16 Independence									.60	.92		
17 Management											.88	.89
18 Success							.64	.70				
19 Self-Satisfaction					.73	.57						
20 Intellectual Stimulation			.79	.74								
21 Creativity	-.42	-.69			-.42	(-.13)						
22 Security							.68	.57				
23 Prestige	-.54	(-.30)	-.44	(-.20)	(-.25)	-.65						
24 Economic Returns			-.51	(-.17)	-.50	-.73						
25 Surroundings	.75	.75										
26 Associates	.76	.68										
27 Variety			.78	.81								
28 Follow Father			(-.06)	-.63					-.87	(-.07)		

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 8

Stage III

VIEWS OF LIFE

ENGLAND - 14 Year Olds Item	Loadings Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
43 Locus of Control(Internal/external)	.574*	-.120	.011	.070	.120	.142	-.216	-.076
44 Academic Locus of Control	-.211	-.193	.106	.270	.317	-.254	-.040	-.021
45 Action-Inaction	.090	.050	.516*	-.124	.052	-.078	-.069	.084
46 Immediate-Delayed Action	-.073	-.020	.382	.078	-.034	.014	.020	.052
47 Rate of Action	.064	-.046	.019	.506*	-.030	.108	.080	.056
48 Intrinsic-Extrinsic Work Motivation	-.073	-.030	-.017	-.110	.201	.207	-.229	.054
49 Task Achievement-Interpersonal Relations	-.271	.347	.126	.311	.175	-.001	-.025	-.209
50 Competition-Cooperation	-.052	.130	.061	.003	-.056	.619*	-.005	.038
51 Independent- Obedient	.518*	-.034	-.063	.100	-.097	.092	.103	.016
52 Earned-Bestowed Status	.091	.032	.114	-.365	.085	.212	.258	-.135
53 Confront-Avoid	.131	.058	-.016	-.075	.563*	.072	.020	.036
54 Self - Other Initiation	.247	.203	.180	.267	.132	-.035	.038	.295
55 Self - Other Solver	.195	.155	-.025	.280	-.081	-.117	.039	.016
56 Self - Joint Implementation	-.051	.592*	.008	-.012	.003	-.098	-.017	.046
58 Instrument - Fantasy	-.198	.050	.217	.065	-.027	.255	.229	.140
59 Emotional Control/Expressivity	-.365	-.027	-.046	.059	-.104	.156	-.043	-.047
60 Activity/Passivity under Stress	.149	-.051	.089	.037	.087	.027	.400*	.029
61 Positive/Negative Self- Esteem	.017	.008	.203	.104	.033	-.007	-.110	.568*
62 View of Life (Complex/Simple)	-.183	.054	.033	-.021	.069	-.009	.379	-.114

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

Stage I

SOCIAL ATTITUDES INVENTORY

ENGLAND - 14 Year Olds	Loadings Factor 17	Factor 18
Sub-Scores		
1 Active Coping	.730*	-.138
2 Passive Coping	.822*	.124
3 Active Defensive	-.221	.755*
4 Passive Defensive	.191	.819*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

Stage III

SOCIAL ATTITUDES INVENTORY

ENGLAND - 14 Year Olds	Factor Loading
Sub-Scores	
37 Task Achievement	.599*
38 Authority	.822*
39 Aggression	.669*
40 Interpersonal Relations	.684*
41 Anxiety	.545*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

ENGLAND - 14 Year Olds

New Factor Designation	Factor Abbre- viation	Stage I Desig- nation	Stage III Desig- nation	NAME
	COMMON FACTORS			
I	C(SC)	1	2	Copes with Anxiety
II	C(SC)	2	5	Copes with Aggression
III	C(SC)	3	4	Copes with Interpersonal Relations
IV	C(SC)	4	1	Copes with Task Achievement
V	C(SC)	5	3	Copes with Authority
VI	OVAL	11	13	Values Surroundings and Associates and does not value Creativity (nor Prestige)*
VII	OVAL	12	14	Values Intellectual Stimulation and Variety (does not value Prestige, Economic Returns, nor Following Father's occupation).
VIII	OVAL	13	11	Values Altruism, Self-Satisfaction, and does not value Economic Returns (Prestige nor Creativity)
IX	OVAL	14	12	Values Success and Security and does not value Esthetics
X	OVAL	15	16	Values Independence (does not value Following Father)
XI	OVAL	16	15	Values Management
	UNIQUE FACTORS			
	C(SC)	6	-	Negative and positive, not neutral Affect toward Task Achievement
	C(SC)	7	-	Positive attitude toward Authority, Interpersonal Relations and Task Achievement.
	C(SC)	8	-	Copes with Interpersonal Relations via Stance and Engagement.
	C(SC)	9	-	Copes effectively with Authority via Stance and Engagement.
	C(SC)	10	-	Positive Affect toward Authority
	C(SC)	-	6	Copes effectively with Interpersonal Relations with neutral, not hostile Affect; without hostile Affect toward Authority; positive, not hostile Affect toward Anxiety.
	C(SC)	-	7	Copes with Aggression via Stance, Engagement and does not seek aid.
	C(SC)	-	8	Hostile, depressive, and positive, not neutral Affect toward Task Achievement.
	C(SC)	-	9	Depressive, not neutral Affect toward Interpersonal Relations; Depressive Affect toward Aggression
	C(SC)	-	10	Positive attitude toward Task Achievement without Positive Affect toward Anxiety.
	C(VOL)	-	17	Internal Locus of Control and Independent
	C(VOL)	-	18	Self-Implementor
	C(VOL)	-	19	Prefers action
	C(VOL)	-	20	Prefers fast Rate of Action
	C(VOL)	-	21	Confronts problems
	C(VOL)	-	22	Competitive
	C(VOL)	-	23	Active in Stress Situations
	C(VOL)	-	24	Positive Self-Esteem
	C(SAI)	17	-	Copes effectively
	C(SAI)	18	-	Shows defensive behavior
	C(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

ENGLAND - 14 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with neutral, not negative Affect.	$p < .001$
C(SC)2-II	F > M	Copes effectively with Aggression via Stance and Engagement with positive, not negative Affect.	$p < .001$
C(SC)3	F > M	Copes effectively with Interpersonal Relations with neutral, not negative Affect.	$p < .043$
C(SC)7	F > M	Positive attitude toward Authority, Interpersonal Relations, and Task Achievement.	$p < .001$
C(SC)8	F < M	Copes with Interpersonal Relations via Stance and Engagement.	$p < .001$
[i]OVAL 11-VI	F > M	Values Surroundings and Associates; doesn't value Prestige and Creativity.	$p < .009$
[i]OVAL 12-VII	F > M	Values Intellectual Stimulation and Variety; doesn't value Prestige and Economic Returns.	$p < .001$
[i]OVAL 13-VIII	F > M	Values Altruism and Self-Satisfaction doesn't value Creativity and Economic Returns.	$p < .001$
[i]OVAL 14-IX	F < M	Values Success and Security; doesn't value Esthetics.	$p < .003$
OVAL 15-X	F > M	Values Independence; doesn't Follow Father.	$p < .001$
OVAL 16-XI	F < M	Values Management	$p < .001$

---

* 11/18 (61%) of the significance tests were significant above chance. This indicates these restults were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

Table 13

SIGNIFICANT SEX DIFFERENCES*

ENGLAND - 14 Year Olds - Stage III

			Probability Level
C(SC)10	F < M**	Positive attitude toward Task Achievement without positive Affect toward Anxiety.	$p < .008$
[i]OVAL 11-VIII	F > M	Values Altruism and Self-satisfaction; doesn't value Prestige and Economic Returns.	$p < .001$
[i]OVAL 12-IX	F < M	Values Success and Security; doesn't value Esthetics.	$p < .001$
[i]OVAL 13-VI	F > M	Values Surroundings and Associates; doesn't value Creativity.	$p < .001$
[i]OVAL 14-VII	F > M	Values Intellectual Stimulation and Variety; doesn't Follow Father.	$p < .001$
[n]C(VOL)24	F < M	Positive Self-Esteem	$p < .036$

---

* 6/25 (24%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 14

SIGNIFICANT SES DIFFERENCES*

ENGLAND - 14 Year Olds - Stage I

			Probability Level
[i]OVAL 14-IX	L > M**	Values Success and Security; doesn't value Esthetics.	$p < .007$
OVAL 15-X	L > M	Values Independence; doesn't Follow Father.	$p < .03$
[n]C(SAI)17	L > M	Copes effectively	$p < .013$

---

* 3/18 (17%) of the significance tests were significant above chance. This indicates these results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 15

SIGNIFICANT SES DIFFERENCES*

ENGLAND - 14 Year Olds - Stage III

			Probability Level
C(SC)6	L < M**	Copes effectively with Interpersonal Relations with neutral, not hostile Affect toward Interpersonal Relations, with hostile Affect toward Authority, and with positive, not hostile Affect toward Anxiety.	$p < .04$
[i]OVAL 12-IX	L > M	Values Success and Security; doesn't value Esthetics.	$p < .001$
OVAL 14-VII	L > M	Values Intellectual Stimulation and Variety; doesn't Follow Father.	$p < .012$
OVAL 16-X	L < M	Values Independence	$p < .026$
[n]C(VOL)17	L < M	Internal Locus of Control; prefers independent action.	$p < .02$
[n]C(VOL)18	L < M	Self-Implementation	$p < .039$

---

* 6/25 (24%) of the sifnificance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 16a.

Stage I

REGRESSION ANALYSIS

ENGLAND - 14 Year Olds — CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}-C(SAI)17	6.43	.012	.13	.02	.02
C(SC)3	5.32	.022	.18	.03	.01
^{i} OVAL 15-X	14.66	.001	.26	.07	.04
^{i} ED ASP	85.93	.001	.50	.25	.18
^{i} OCC ASP	10.52	.001	.52	.27	.02
^{i} RAVEN	56.79	.001	.60	.37	.10
BRS	.85	NS			

Additional Explanatory Variables:

	pr	p	r	p
^{n}-C(SAI)18			-.11	.05

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:

[n]-C(SAI)17[*]= Does not cope effectively

C(SC)3 = Copes with Interpersonal Relations

[i] OVAL 15-X= Values Independence and doesn't value Following Father

[i] ED ASP = Educational Aspiration

[i] OCC ASP = Occupational Aspiration

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

[n]-C(SAI)18 = Does not show defensive behavior

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

ENGLAND - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)1-IV	9.81	.002	.23	.05	.05
^{n}C(VOL)21	4.45	.04	.28	.08	.02
^{i}OVAL 16-X	7.09	.008	.34	.11	.04
^{i}ED ASP	37.56	.001	.52	.27	.16
^{i}RAVEN	37.98	.001	.63	.40	.13
BRS	2.22	NS			

Additional Explanatory Variables:

	pr	p	r	p
^{i}OCC ASP			.46	.05
^{n}C(VOL)22			.16	.05
^{n}C(VOL)23			.16	.05

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:

C(SC)1-IV = Copes well with Task Achievement

^{n}C(VOL)21 = Confronts problems

^{i}OVAL 16-X = Values Independence

^{i}ED ASP = Educational Aspiration

^{i}RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

^{i}OCC ASP = Occupational Aspiration

^{n}C(VOL)22 = Competitive

^{n}C(VOL)23 = Actively copes when under stress

---

^{n} = No comparable instrument in the other sample
^{i} = An identical predictor or explanatory factor across samples

Table 18a.

Stage I

REGRESSION ANALYSIS

ENGLAND - 14 Year Olds — CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)18	6.73	.010	.13	.02	.02
OVAL 15-X	8.33	.004	.20	.04	.02
[i]ED ASP	63.45	.001	.43	.18	.14
[i]OCC ASP	17.41	.001	.47	.22	.04
[i]RAVEN	151.90	.001	.67	.45	.23
BRS	2.55	NS			

Additional Explanatory Variables:

	pr	p	r	p

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 14 Year Olds CRITERION: Math Achievement

[n] -C(SAI)18[*] = Does not show defensive behavior

OVAL 15-X = Values Independence; does not value Following Father's occupation.

[i] ED ASP = Educational Aspiration

[i] OCC ASP = Occupational Aspiration

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

---

[n] = No comparable instrument in the other sample
[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

ENGLAND - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)6	17.75	.001	.30	.09	.09
^{n}C(VOL)23	8.55	.004	.37	.13	.04
^{n}C(VOL)22	7.24	.01	.41	.17	.03
^{n}-C(VOL)24	4.61	.03	.44	.19	.02
OVAL 16-X	9.26	.003	.48	.23	.04
^{i} ED ASP	45.51	.001	.63	.39	.16
^{i} OCC ASP	4.36	.04	.64	.41	.02
^{i} RAVEN	51.39	.001	.75	.56	.15
BRS	.61	NS			

Additional Explanatory Variables:

	pr	p	r	p
C(SC)1-IV			.18	.05
C(SC)4			.17	.05
-C(SC)9			-.18	.05
OVAL 11-VIII			.15	.05
-C(SC)2-I	-.16	.04		

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

C(SC)6 = Copes effectively with Interpersonal Relations with neutral, not hostile Affect; without hostile Affect toward Authority; positive, not hostile Affect toward Anxiety.

[n]C(VOL)23 = Copes actively with stress

[n]C(VOL)22 = Competitive

[n]-C(VOL)24[*]= Negative Self-Esteem

OVAL 16-X= Values Independence

[i]ED ASP = Educational Aspiration

[i]OCC ASP = Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)1-IV= Copes effectively with Task Achievement with positive attitude toward Authority.

C(SC)4-III=Copes effectively with Interpersonal Relations

-C(SC)9 = Neutral, not depressive Affect toward Interpersonal Relations.

OVAL 11-VIII = Values Altruism and Self-Satisfaction, does not value Prestige or Economic Returns.

-C(SC)2-I = Does cope well with Anxiety.

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

ENGLAND - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9-I	6.55	.011	.13	.02	.02
[n]-C(SAI)17	6.78	.010	.19	.04	.02
OVAL 14-IX	6.46	.011	.23	.05	.02
[i]OCC ASP	53.96	.001	.42	.17	.12
[i]ED ASP	17.88	.001	.46	.21	.04
[i]RAVEN	10.99	.001	.49	.24	.02
BRS	28.92	.001	.54	.29	.06

Additional Explanatory Variables:

	pr	p	r	p

Table 20b.

Stage I

DESCRITPTION OF REGRESSION FACTORS

ENGLAND - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)9-I = Copes well with Authority via Stance and Engagement.

[n]-C(SAI)17* = Does not cope effectively

OVAL 14-IX =Values Success and Security and not Esthetics.

[i] OCC ASP = Occupational Aspiration

[i] ED ASP = Educational Aspiration

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

pr	p	r	p

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

ENGLAND - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)6	10.04	.002	.23	.05	.05
[n] C(VOL)17	5.01	.03	.28	.08	.03
OVAL 14-VII	6.46	.01	.34	.11	.03
[i] ED ASP	37.06	.001	.52	.27	.16
[i] RAVEN	10.31	.002	.56	.31	.04
BRS	2.60	NS			

Additional Explanatory Variables:

	pr	p	r	p
[i] OCC ASP			.25	.05
C(SC)4			.19	.05
OVAL 16-X			.19	.05
[n] C(VOL)22			.15	.05

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ENGLAND - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)6 = Copes effectively with Interpersonal Relations with neutral, not hostile Affect; without hostile Affect toward Authority; positive, not hostile Affect toward Anxiety.

[n]C(VOL)17 = Internal Locus of Control and Independent.

OVAL 14-VII= Values Intellectual Stimulation and Variety; does not value Following Father.

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]OCC ASP = Occupational Aspiration

C(SC)4 = Copes with Interpersonal Relations

OVAL 16-X= Values Independence

[n]C(VOL)22 = Competitive

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

ENGLAND - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	9.9%	23.0%	2.3%
Coping/Motivation (unique)	13.0%	6.8%	15.3%
Total	36.6%	44.8%	23.5%

ENGLAND - 14 Year Olds - Stage III

Aptitude (unique)	13.2%	15.4%	4.1%
Coping/Motivation (unique)	7.6%	8.5%	12.1%
Total	39.0%	56.2%	30.7%

Table 23

CORRELATIONS AMONG THE CRITERIA

ENGLAND - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.57		.42
GPA	.35		

ENGLAND - 14 Year Olds - Stage III

Reading			
Math	.58		.47
GPA	.29		

GERMANY - 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in German 10 year old students from the 1968 (Stage III) sample. (Germany was not included in the 1965, Stage I, sample.) The results include factor analyses of the coping/motivational instruments: Sentence Completion and Occupational Values. The Views of Life and the Social Attitudes Inventory were not used with this sample. Sex and socioeconomic status differences are described next. Finally, the regression analyses are delineated in order to show the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analysis of the Sentence Completion variables resulted in ten factors which accounted for a substantial percentage of the variance. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The analysis appears in Table 2. There were five general factors, corresponding to coping with aggression, authority, anxiety, interpersonal relations, and task achievement. Unit weights were constructed using those variables having a factor loading ($\geq .40$). For example, factor 1 consisted of all seven variables dealing with coping with task achievement. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas.

Occupational Values

Factor analysis of the Occupational Values variables yielded six factors. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analysis in Table 5).

SEX DIFFERENCES

Sex differences are listed in Table 13. Females tended to cope more effectively with interpersonal relations, with neutral, not hostile affect. In work, females placed greater value than males on altruism and intellectual stimulation in contrast to management and economic returns. They also more highly valued self-satisfaction and associates as opposed to creativity.

SES DIFFERENCES

Social class differences are listed in Table 15. Lower-class students coped more effectively with aggression and with authority than did the middle class. In a work setting, the middle class placed greater value on altruism and intellectual stimulation and less value on management and economic returns than the lower class.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement are listed in Tables 17a and 17b. Good readers did not cope effectively with anxiety, showing hostile, not positive affect. They valued altruism and intellectual stimulation as opposed to management and economic returns. These students had higher aptitude scores, and higher educational aspirations than poorer readers. In addition, occupational aspiration was correlated with reading achievement in this German 10 year old sample.

Math Achievement

Predictors of math achievement are listed in Tables 19a and 19b. Students who were good in math coped well with persons in authority. These students valued altruism and intellectual stimulation, in contrast to management and economic returns. In addition, they had higher aptitude scores, and higher educational aspirations, and were rated higher by their peers on the BRS than poorer students. Finally, occupational aspiration was also correlated with math achievement.

Grade Point Average

Predictors of GPA were few. They are listed in Tables 21a and 21b. Teachers gave higher grades to students who coped effectively with interpersonal relations, with neutral, not hostile affect. Such students also were rated higher by their peers on the BRS. In addition, students with high GPA had higher aptitude scores and higher educational aspirations. Teacher grades correlated very little, themselves, with reading (.14) or math (.43) achievement.

PERCENT OF VARIANCE SUMMARY

In order to assess the practical implications of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and by the coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivational variables, aptitude was entered first, followed by the coping/motivational variables. The unique variance of both aptitude and coping/motivation variables was that increment in variance "explained," beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

Aptitude uniquely accounted for 4.6% of the variance in reading, 15.6% in math, and 11.5% in GPA. The coping/motivation factors uniquely accounted for 9.0% of the variance in reading, 8.4% in math, and 2.4% in GPA. These factors were not as powerfully predictive in this German 10 year old sample as they were in most other national samples, although they were more predictive of reading achievement than was aptitude.

What is more, some properties that reflected both aptitude and coping substantially increased the total variance explained on all achievement criteria (18% to 35%). This gives added weight to the explanatory power and practical usefulness of the coping/motivation measures, even with certain instruments missing. Success in school for German 10 year olds was contingent upon certain attitudinal qualities and coping skills, particularly as they shared variance with aptitude.

Table 2

STAGE III

SENTENCE COMPLETION

GERMANY - 10 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.119	-.040	.045	.050	.120	-.157	.532*	.084	.001	-.071
65 T.A. - Stance	.857*	.023	.048	.153	.083	.008	.189	-.036	-.164	.067
66 T.A. - Engagement	.818*	-.037	.122	.064	-.035	.007	.020	-.147	.139	-.095
67 T.A. - Aid/Advice	.789*	-.119	.104	.095	-.034	.005	.041	-.203	.106	-.060
68 T.A. - Coping Effect	.770*	.054	.088	.234	.098	.064	.291	-.046	-.119	.017
69 T.A. - Hostile Affect	-.502*	.127	-.063	-.156	.238	-.308	.009	-.114	.025	-.057
70 T.A. - Depressive Aff.	-.548*	-.130	.047	-.043	-.317	.206	.169	-.160	.079	-.183
71 T.A. - Neutral Aff.	.778*	.008	-.027	.121	.073	.087	-.147	.041	-.119	.147
72 T.A. - Positive Aff.	-.105	-.008	.129	.067	-.029	-.074	.061	.544*	.158	.089
73 Interpersonal Relations Attitude	.040	-.005	.063	.149	-.055	.120	.461*	-.062	-.089	.066
74 I.R. - Stance	.039	-.051	.014	-.039	.800*	-.239	-.030	.043	-.007	.038
75 I.R. - Engagement	.022	.016	.045	.034	.921*	.245	.094	-.051	.037	-.063
76 I.R. - Aid/Advice	.027	.000	.046	.035	.916*	.250	.084	-.051	.023	-.074
77 I.R. - Coping Effect	.098	.057	.010	.089	.780*	.499*	.119	-.117	.029	-.036
78 I.R. - Hostile Affect	-.067	-.114	-.065	-.036	-.183	-.885*	-.096	.010	-.110	-.012
79 I.R. - Depressive Aff.	-.013	.085	-.083	-.165	-.308	.111	.386	-.045	.361	-.166
80 I.R. - Neutral Aff.	.079	.094	.104	.107	.317	.826*	-.060	-.120	-.028	.100
81 I.R. - Positive Aff.	-.035	-.096	-.018	.003	-.004	.049	-.070	.752*	-.105	-.094

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

GERMANY - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.038	.096	-.079	.113	.020	.121	.713*	-.103	-.078	-.029
83 Auth. - Stance	.072	-.065	.054	.769*	.211	-.075	.062	-.007	.083	.038
84 Auth. - Engagement	.162	.107	-.092	.730*	-.002	.009	.276	.132	-.076	-.012
85 Auth. - Aid/Advice	.177	.114	-.035	.786*	.039	.010	.265	.100	-.070	.000
86 Auth. - Coping Eff.	.223	.078	.098	.874*	.012	.160	.163	.033	.046	.000
87 Auth. - Hostile Aff.	-.294	-.079	-.058	-.437*	.172	-.389	-.214	-.160	.119	.031
88 Auth. - Depress. Aff.	.103	.041	-.214	-.588*	-.006	.204	.401*	.141	-.118	-.009
89 Auth. - Neutral Aff.	.165	.037	.202	.804*	-.132	.167	-.125	-.033	-.010	-.017
90 Auth. - Positive Aff.	-.034	-.050	.124	.065	-.060	-.049	-.083	.782*	.040	-.013
91 Anxiety - Attitude	-.065	-.005	.115	.099	.139	-.073	.399	-.027	.128	.112
92 Anx. - Stance	.084	.008	.818*	.013	.047	.050	-.165	.048	.014	.222
93 Anx. - Engagement	.043	.110	.837*	.028	.038	-.039	.205	.189	.032	-.128
94 Anx. - Aid/Advice	-.002	.096	.814*	.033	.005	-.094	.199	.245	.001	-.125
95 Anx. - Coping Eff.	.085	.099	.664*	.101	.022	.197	.011	-.011	.049	.528*
96 Anx. - Hostile Aff.	-.132	-.155	-.093	.075	.066	-.098	-.352	-.117	-.029	-.647*
97 Anx. - Depressive Aff.	-.047	.051	-.779*	-.140	-.028	-.030	.202	.137	.055	.021
98 Anx. - Neutral Aff.	.109	.077	.758*	.055	-.006	.106	.118	.001	-.015	.044
99 Anx. - Positive Aff.	.058	-.028	.034	.037	-.030	-.019	-.115	-.091	-.029	.808*

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

GERMANY - 10 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.035	.197	.020	-.020	.053	.020	-.310	.091	.737*	.023
101 Agg. - Engagement	-.065	.853*	.059	-.008	.084	-.020	.048	.012	.347	-.006
102 Agg. - Aid/Advice	-.061	.858*	.075	-.033	.098	-.003	.056	.024	.326	-.007
103 Agg. - Coping Effect	-.019	.883*	.076	.097	-.047	.058	-.001	-.032	.032	.007
104 Agg. - Hostile Aff.	-.072	-.779*	-.057	-.106	.080	-.109	.025	.135	.479*	-.071
105 Agg. - Depressive Aff.	.194	.037	-.002	-.095	-.011	-.057	-.193	.003	-.338	-.024
106 Agg. - Neutral Aff.	.022	.780*	.059	.132	-.078	.126	.025	-.138	-.398	.078
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

GERMANY - 10 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.746*	.208	.216	-.183	.128	.078
15 Esthetics	-.214	.092	-.775*	-.005	.022	.089
16 Independence	-.238	-.024	.652*	-.003	-.013	-.015
17 Management	-.688*	-.018	.389	-.041	.069	.124
18 Success	-.045	-.322	-.078	-.302	.628*	.067
19 Self-Satisfaction	.124	.646*	-.049	.126	-.015	-.180
20 Intellectual Stimulation	.643*	-.256	.171	.205	.059	.259
21 Creativity	.185	-.728*	.029	-.124	-.202	-.044
22 Security	-.011	-.001	.114	-.034	.093	-.943*
23 Prestige	-.112	-.325	-.605*	-.332	.227	.020
24 Economic Returns	-.541*	-.040	.088	-.244	.326	.221
25 Surroundings	-.135	.277	.223	.691*	.173	.049
26 Associates	.094	.676*	.093	-.071	-.297	.197
27 Variety	.236	.012	-.038	.802*	-.132	.006
28 Follow Father	-.007	-.131	.081	-.157	-.812*	.149

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

GERMANY - 10 Year Olds

New Factor Designation	Factor Abbreviation	Stage III Designation	NAME
	C(SC)	1	Copes with Task Achievement
	C(SC)	2	Copes with Aggression
	C(SC)	3	Copes with Anxiety
	C(SC)	4	Copes with Authority
	C(SC)	5	Copes with Interpersonal Relations
	C(SC)	6	Copes with Interpersonal Relations with Neutral, not Hostile Affect
	C(SC)	7	Positive Attitude toward Task Achievement, Interpersonal Relations, and Authority; Depressive Affect toward Authority.
	C(SC)	8	Positive Affect toward Task Achievement, Interpersonal Relations, and Authority.
	C(SC)	9	Confronts Aggression without Hostile Affect
	C(SC)	10	Copes effectively with Anxiety with Positive, not Hostile Affect
	OVAL	11	Values Altruism, Intellectual Stimulation; does not value Management or Economic Returns
	OVAL	12	Values Self-Satisfaction and Associates; does not value Creativity
	OVAL	13	Values Independence; does not value Esthetics or Prestige
	OVAL	14	Values Surroundings and Variety
	OVAL	15	Values Success; does not value Following Father's Occupation
	OVAL	16	Does not value Security

Table 13

SIGNIFICANT SEX DIFFERENCES*

GERMANY - 10 Year Olds - Stage III

			Probability Level
C(SC)6	F > M**	Copes effectively with Interpersonal Relations with neutral, not hostile Affect	$p < .031$
OVAL 11	F > M	Values Altruism and Intellectual Stimulation; doesn't value Management and Economic Returns	$p < .006$
OVAL 12	F > M	Values Self-satisfaction and Associates; doesn't value Creativity	$p < .001$

---

* 3/16 (18%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

**F = Female M = Male

Table 15

SIGNIFICANT SES DIFFERENCES*

GERMANY - 10 Year Olds - Stage III

			Probability Level
C(SC)2	L > M**	Copes effectively with Aggression via Engagement and without seeking Advice, with Neutral not Hostile Affect.	$p < .019$
C(SC)4	L > M	Copes effectively with Authority via Stance, Engagement, and without seeking Advice with Neutral, not Hostile or Depressive Affect	$p < .041$
OVAL 11	L < M	Values Altruism and Intellectual Stimulation; doesn't value Management and Economic Returns	$p < .001$

---

* 3/16 (18%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

Table 17a.

Stage III

REGRESSION ANALYSIS

GERMANY - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)10	3.06	.08	.13	.02	.02
OVAL 11	4.56	.03	.21	.04	.03
ED ASP	21.81	.001	.39	.15	.11
RAVEN	9.84	.002	.44	.20	.05
BRS	.35	NS			

Additional Explanatory Variables:

	pr	p	r	p
OCC ASP			.31	.05

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

GERMANY - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiplr R	R^2	R^2 Change

-C(SC)10* = Does not cope effectively with Anxiety ; shows hostile, not positive Affect

OVAL 11 = Values Altruism and Intellectual Stimulation; doesn't value Management and Economic Returns

ED ASP = Educational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

OCC ASP = Occupational Aspirations

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

GERMANY - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)4	3.97	.05	.15	.02	.02
OVAL 11	6.18	.01	.24	.06	.03
ED ASP	21.82	.001	.44	.20	.14
RAVEN	41.08	.001	.59	.35	.16
BRS	10.19	.002	.62	.39	.04

Additional Explanatory Variables:

	pr	p	r	p
OCC ASP			.22	.05

Table 19b.

STAGE III

DESCRIPTION OF REGRESSION FACTORS

GERMANY - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

C(SC)4 = Copes with Authority

OVAL 11 = Values Altruism and Intellectual Stimulation; doesn't value Management and Economic Returns

ED ASP = Educational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

OCC ASP = Occupational Aspirations

Table 21a.

Stage III

REGRESSION ANALYSIS

GERMANY - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)6	3.79	.05	.15	.02	.02
ED ASP	7.65	.006	.25	.06	.04
RAVEN	24.17	.001	.42	.18	.12
BRS	20.90	.001	.52	.27	.09

Additional Explanatory Variables:

pr	p	r	p

Table 21b.

Stage III

REGRESSION ANALYSIS

GERMANY - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change

C(SC)6 = Copes effectively with Interpersonal Relations with neutral, not hostile Affect

ED ASP = Educational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Table 22

PERCENT OF VARIANCE EXPLAINED

GERMANY - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	4.6%	15.6%	11.5%
Coping/Motivation (unique)	9.0%	8.4%	2.4%
Total	20.0%	35.1%	17.8%

Table 23

CORRELATIONS AMONG THE CRITERIA

GERMANY - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.28		.43
GPA	.14		

GERMANY - 14 YEAR OLDS -- RESULTS AND DISCUSSION

The findings presented in this section provide a detailed picture of the coping patterns that were associated with achievement in German students in the 1968 (Stage III) sample. No data were collected in Germany in 1965. The results include the factor analysis of the coping/motivation instruments: Sentence Completion, and Occupational Values. Sex and socioeconomic status differences are then described. Finally, the regression analyses are presented in order to show the specific factors that predict and explain achievement for these German students.

FACTOR ANALYSES

Sentence Completion

The Sentence Completion instrument was factored into ten factors that accounted for most of the total variance (see Table 1). As was the case in all of the factor analyses of this instrument, five of the factors were composed of coping styles, effective coping, and neutral affect around each of the behavioral areas. Thus, these five factors can be titled coping with aggression, anxiety, task achievement, interpersonal relations and authority. The other factors include certain sub-aspects of coping skill in the five areas of behavior.

Occupational Values

The Occupational Values instrument was factored into six factors which accounted for most of the total variance: (1) self-satisfaction, variety, and pleasant associates and surroundings (not success or status), (2) economic returns (not altruism), (3) creativity and intellectual stimulation (not security), (4) security (not prestige or esthetics), (5) independence, (6) managerial power (not following father's occupation).

SEX DIFFERENCES

In this sample of German students, 35% of the factors showed evidence of sex differences. In coping skill, males reported coping better with anxiety than females. Females also tended to have different attitudes and affects towards several behavioral areas. Females had more positive attitudes than males toward task achievement and authority. Females more than males had depressive affect and negative attitude toward interpersonal relations. In Occupational Values, females valued more than males self-satisfaction and surroundings rather than management, success, prestige and economic returns. Females valued altruism more than males.

SES DIFFERENCES

In this sample of German students, 29% of the factors showed socioeconomic differences. Lower-class students reported coping more effectively than middle-class children with task achievement, anxiety and authority. In Occupational Values the lower-class students valued more than middle-class students management and security rather than esthetics, prestige or following father's occupation.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

There were several factors that predicted reading achievement. Several components of coping with anxiety were predictive; that is, those children who approached anxiety and coped effectively, with positive rather than depressive affect, were good readers. Those children who did not engage but sought aid in solving anxiety-arousing problems also were good at reading. Students with high achievement scores also had positive attitudes toward task achievement and authority, but not about interpersonal relations. These students placed high value on independence and had high educational aspirations. The aptitude measure was predictive of reading achievement, but the BRS did not add predictive variance. Additional variables associated with reading achievement were hostile non-coping with aggression, valuing altruism rather than success, prestige or economic returns, and valuing intellectual stimulation, creativity, and variety rather than security. Good readers had high occupational aspirations.

Math Achievement

Students who received high math achievement scores coped well with anxiety, with positive not depressive affect. These students had positive attitudes toward task achievement and authority but not interpersonal relations. Because of an instance of net suppression, educational aspirations appeared to be inversely related to math achievement (but were not, in their direct correlation). The Aptitude and Behavior Rating Scale were both predictive of math achievement. Coping with task achievement was also correlated with math achievement.

Grade Point Average

There were no coping factors that were predictive of grades in these German students. Valuing independence was predictive as was aptitude and the BRS. The lack of predictiveness of the coping/motivation measures brings into question the validity of these measures for these German students.

PERCENT OF VARIANCE

The percent of variance accounted for across the three criterion varied widely. While approximately 50% of the reading achievement was predicted, only 5% of teacher grades were predicted. The coping/

motivation measures were valid predictors of reading and math achievement, but they showed little power to explain teacher grades. This is understandable, however, since teacher grades had very little relationship, themselves, to either reading (.28) or math (.21) achievement scores. The teachers seem to have graded on classroom behavior, like the peers (BRS).

Table 2

STAGE III

SENTENCE COMPLETION

GERMANY - 14 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.231	-.048	-.205	.120	-.014	.098	.056	.124	.555*	.125
65 T.A. - Stance	.865*	.133	.114	.169	.010	-.045	.103	.013	.060	.043
66 T.A. - Engagement	.843*	.091	.091	.065	-.043	.044	.145	-.027	-.038	.097
67 T.A. - Aid/Advice	.798*	.085	.003	.084	-.065	.046	.002	-.024	-.067	.161
68 T.A. - Coping Effect	.786*	.087	.105	.171	-.002	-.040	.168	.031	.194	.118
69 T.A. - Hostile Aff.	-.595*	.104	.066	-.101	-.068	-.131	.183	-.124	-.115	.301
70 T.A. - Depressive Aff.	-.357	-.004	.061	-.001	.037	.078	-.013	-.314	.382	.007
71 T.A. - Neutral Aff.	.763*	-.043	-.009	.120	.055	.025	-.131	-.037	-.067	-.331
72 T.A. - Positive Aff.	-.276	-.059	-.116	-.056	-.032	.071	-.005	.455*	-.011	.170
73 Interpersonal Relations Attitude	-.039	.101	.039	.086	-.087	-.064	-.095	.118	.520*	-.291
74 I.R. - Stance	.002	.880*	-.043	.043	.008	.105	.069	-.130	-.024	-.070
75 I.R. - Engagement	.077	.954*	-.037	.094	.019	.023	.033	.135	.033	-.001
76 I.R. - Aid/Advice	.071	.956*	-.038	.099	.027	.022	.034	.132	.040	.006
77 I.R. - Coping Effect	.136	.889*	-.052	.105	.041	.016	.021	.277	.043	-.025
78 I.R. - Hostile Affect	-.113	-.240	-.067	-.125	-.027	-.005	.023	-.862*	-.074	-.002
79 I.R. - Depressive Aff.	-.122	-.206	-.092	-.033	-.044	-.113	-.202	.005	.080	.418*
80 I.R. - Neutral Aff.	.147	.295	.084	.113	.018	.045	.053	.835*	.037	-.149
81 I.R. - Pos[illegible] Aff.	.023	.041	.131	.199	.251	-.012	-.065	-.169	.068	.079

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

GERMANY - 14 Year Olds

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.056	-.034	.187	.166	.060	-.167	-.081	.350	.487*	.095
83 Auth. - Stance	.121	.296	.092	.594*	.066	.034	.188	-.030	.183	-.044
84 Auth. - Engagement	.083	.038	.089	.757*	.005	-.052	-.045	-.009	.156	.180
85 Auth. - Aid/Advice	.085	.076	.027	.761*	.058	-.078	-.003	-.050	.215	.188
86 Auth. - Coping Eff.	.196	.111	-.002	.888*	.031	.040	.122	.134	.021	.008
87 Auth. - Hostile Aff.	-.165	.047	.039	-.678*	-.019	-.044	-.018	-.169	.311	.168
88 Auth. - Depress. Aff.	.023	-.010	-.119	-.399	.067	-.119	-.182	.059	-.155	.181
89 Auth. - Neutral Aff.	.133	-.035	.029	.804*	-.019	.101	.112	.116	-.190	-.243
90 Auth. - Positive Aff.	.000	.000	-.000	-.000	.000	.000	-.000	-.000	.000	-.000
91 Anxiety - Attitude	-.122	.128	.027	.137	.115	.064	.263	-.045	.291	.191
92 Anx. - Stance	.023	.069	.379	.039	.054	.793*	-.127	-.010	-.043	-.043
93 Anx. - Engagement	.057	.003	.889*	.138	.028	.125	-.119	.006	-.102	.019
94 Anx. - Aid/Advice	.044	-.056	.891*	.096	.016	.166	-.087	-.009	-.125	.000
95 Anx. - Coping Eff.	.108	.075	.240	.063	-.026	.788*	.068	-.005	.065	.024
96 Anx. - Hostile Aff.	-.157	.036	-.044	-.100	.033	-.312	-.118	-.238	.014	-.622*
97 Anx. - Depressive Aff.	-.114	.080	-.357	-.050	.039	-.557*	-.126	-.033	-.252	.344
98 Anx. - Neutral Aff.	.277	-.183	.615*	.093	-.093	.090	.271	.137	.245	-.006
99 Anx. - Positive Aff.	-.103	.117	-.357	.018	.050	.784*	-.114	.051	-.041	.126

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

GERMANY - 14 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
100 Aggression - Stance	-.105	.071	-.041	.041	.607*	.176	-.361	-.014	.129	.040
101 Agg. - Engagement	.021	-.010	-.020	-.028	.900*	-.028	.287	.021	-.081	.040
102 Agg. - Aid/Advice	.004	.016	-.025	-.016	.895*	-.031	.292	.036	-.057	-.046
103 Agg. - Coping Effect	.027	.053	.016	.130	.662*	-.046	.607*	.048	.010	.018
104 Agg. - Hostile Aff.	-.094	-.079	.054	-.165	-.169	.041	-.911*	.005	.054	-.014
105 Agg. - Depressive Aff.	.014	.067	.080	-.174	.066	-.140	.013	-.154	-.290	.427*
106 Agg. - Neutral Aff.	.092	.068	-.068	.195	.157	-.016	.907*	.022	-.003	-.060
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

Stage III

OCCUPATIONAL VALUES

GERMANY - 14 Year Olds

Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	-.057	-.861*	-.102	.117	-.047	.044
15 Esthetics	-.032	-.066	-.059	-.858*	-.000	.179
16 Independence	-.016	-.101	.042	-.007	.925*	.019
17 Management	-.471*	.080	-.208	.399	.173	.468*
18 Success	-.477*	.521*	-.209	.099	-.199	.182
19 Self-Satisfaction	.731*	.025	-.022	.060	.162	-.129
20 Intellectual Stimulation	.083	-.213	.786*	.315	-.074	.097
21 Creativity	-.399	.053	.735*	-.059	.099	-.146
22 Security	-.026	-.048	-.511*	.471*	-.305	-.108
23 Prestige	-.415*	.457*	-.139	-.547*	-.070	-.126
24 Economic Returns	-.182	.689*	-.318	.152	-.070	.206
25 Surroundings	.565*	-.151	-.094	.029	-.379	.058
26 Associates	.699*	.045	-.123	.078	-.020	.189
27 Variety	.507*	-.156	.504*	-.134	-.079	.114
28 Follow Father	-.140	-.111	-.091	.226	.018	-.835*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

GERMANY - 14 Year Olds

New Factor Designation	Factor Abbreviation	Stage III Designation	NAME
	C(SC)	1	Copes with Task Achievement
	C(SC)	2	Copes with Interpersonal Relations
	C(SC)	3	Copes with Anxiety via Engagement and .not seeking Aid/Advice with Neutral Affect
	C(SC)	4	Copes with Authority
	C(SC)	5	Copes with Aggression
	C(SC)	6	Copes effectively with Anxiety via Stance with Positive, not Depressive Affect
	C(SC)	7	Copes effectively with Aggression with Neutral, not Hostile Affect
	C(SC)	8	Positive Affect toward Task Achievement; Neutral, not Hostile Affect toward Interpersonal Relations
	C(SC)	9	Positive Attitude toward Task Achievement, Interpersonal Relations and Authority
	C(SC)	10	Depressive Affect toward Interpersonal Relations and Aggression; without Hostile Affect toward Anxiety.
	OVAL	11	Values Self-Satisfaction, Surroundings, Associates, and Variety; doesn't value Management, Success, and Prestige.
	OVAL	12	Values Success, Prestige, and Economic Returns; doesn't value Altruism.
	OVAL	13	Values Intellectual Stimulation, Creativity, and Variety; doesn't value Security
	OVAL	14	Values Security; doesn't value Esthetics and Prestige
	OVAL	15	Values Independence
	OVAL	16	Values Management; doesn't value Following Father's Occupation

Table 13

SIGNIFICANT SEX DIFFERENCES*

GERMANY - 14 Year Olds - Stage III

			Probability Level
C(SC)3	F < M**	Copes with Anxiety with neutral Affect.	p < .009
C(SC)8	F > M	Positive Affect toward Task Achievement with neutral, not hostile Affect toward Interpersonal Relations.	p < .036
C(SC)9	F > M	Positive attitude toward Task Achievement, Authority and Interpersonal Relations.	p < .032
C(SC)10	F > M	Depressive Affect toward Interpersonal Relations and Aggression without hostile Affect toward Anxiety.	p < .004
OVAL 11	F > M	Values Self-satisfaction and Surroundings; doesn't value Management, Success, and Prestige.	p < .001
OVAL 12	F < M	Values Success, Prestige, and Economic Returns; doesn't value Altruism.	p < .006

---

* 6/17 (35%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

Table 15

SIGNIFICANT SES DIFFERENCES*

GERMANY - 14 Year Olds - Stage III

			Probability Level
C(SC)1	L > M**	Copes effectively with Task Achievement with neutral, not hostile Affect.	$p < .045$
C(SC)3	L > M	Copes with Anxiety with neutral Affect.	$p < .012$
C(SC)4	L > M	Copes effectively with Authority with neutral, not hostile Affect.	$p < .003$
OVAL 14	L > M	Values Security; doesn't value Esthetics and Prestige.	$p < .027$
OVAL 16	L > M	Values Management, but doesn't Follow Father.	$p < .023$

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* 5/17 (29%) of the significance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L - Lower Class M = Middle Class

Table 17a.

Stage III

REGRESSION ANALYSIS

GERMANY - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)3	6.06	.02	.18	.03	.03
C(SC)6	6.97	.009	.26	.07	.03
C(SC)9	5.45	.02	.30	.09	.03
OVAL 15	14.26	.001	.39	.16	.06
ED ASP	113.53	.001	.69	.47	.32
RAVEN	19.59	.001	.72	.52	.05
BRS	1.18	NS			

Additional Explanatory Variables:

	pr	p	r	p
-C(SC)7			-.15	.05
-OVAL 12			-.17	.05
OVAL 13			.21	.05
OCC ASP			.43	.05

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

GERMANY - 14 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

-C(SC)3 = Does not Engage, but does seek aid to cope with Anxiety; does not have neutral Affect.

C(SC)6 = Copes effectively with Anxiety via Stance with positive, not depressive Affect.

C(SC)9 = Positive attitude toward Task Achievement and Authority but not Interpersonal Relations

OVAL 15= Values Independence

ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

-C(SC)7 = Does not cope with Aggression but is hostile

-OVAL 12 = Disvalues Success, Prestige, and Economic Returns; values Altruism.

OVAL 13 = Values Intellectual Stimulation, Creativity, and Variety; does not value Security.

OCC ASP = Occupational Aspiration

Table 19a.

Stage III

REGRESSION ANALYSIS

GERMANY - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)6	5.13	.03	.16	.03	.03
C(SC)9	4.08	.05	.22	.05	.02
-ED ASP	10.29	.002	.31	.10	.05
RAVEN	27.18	.001	.46	.21	.11
BRS	6.83	.01	.49	.24	.03

Additional Explanatory Variables:

	pr	p	r	p
C(SC)1			.15	.05

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

GERMANY - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

C(SC)6 = Copes well with Anxiety

C(SC)9 = Positive attitude toward Task Achievement and Authority, and Interpersonal Relations.

-ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)1 = Copes well with Task Achievement

Table 21a.

Stage III

REGRESSION ANALYSIS

GERMANY - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
OVAL 15	4.50	.04	.15	.02	.02
RAVEN	5.11	.03	.22	.05	.03
BRS	24.44	.001	.40	.16	.11

Additional Explanatory Variables:

pr	p	r	p

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

GERMANY - 14 Year Olds CRITERION: Grade Point Average

Predictor
Variables:

OVAL 15 = Values Independence

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Table 22

PERCENT OF VARIANCE EXPLAINED

GERMANY - 14 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	5%	11.4%	2.5%
Coping/Motivation (unique)	17.5%	5.4%	1.1%
Total	52%	21%	4.9%

Table 23

CORRELATIONS AMONG THE CRITERIA

GERMANY - 14 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.36		.28
GPA	.21		

ITALY - 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Italian 10 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Italian students. Sex and socioeconomic status differences are then described. Finally, the regression analyses are delineated in order to show the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the total variance. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were three general factors corresponding to coping with aggression, authority, and anxiety. All included a neutral, not negative affect, in the respective behavioral area. Coping with interpersonal relations was described by two factors (5 and 7). Unit weights were constructed using those variables having a factor loading ($\geq .40$). For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 8-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same tendencies, with five major factors corresponding to each of the respective behavioral areas.

As these factors appeared to be yielding similar results, a comparison of the first five factors was examined (see Table 3). These factors were highly similar, with respective percentages of common variables across stages of 100%, 75%, 100%, 40%, and 60%. Many of the variables which did not load higher than .40 on both stages still showed similar direction. While the program RELATE could not be run due to different numbers of variables in the two stages, these factors were considered "identical," and appeared to indicate a stable "Italian" construct system at age 10, that defined coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. Four of the Six factors were "identical," having a cosine of .9 or better (interpreted like a correlation coefficient). The other two factors were "similar" (cosine of .85 and .83). Table 7 depicts the item comparison of these six factors across the two stages. The results of this comparison indicated strong similarity in value constructs across time for Italian 10 year old students.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: Positive coping, and ineffective or defensive responding. Curiously, the variable of passive defensive behavior, normally a negative measure, also loaded with the coping variables indicating that students who reported effective coping also reported some passive defensive behavior. (This pattern appeared in the Mexican sample, as well.)

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor indicated effective coping across four of the five behavioral areas. While anxiety loaded in the same direction, it was not significantly loaded.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments, which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it would receive a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content, described earlier. The first five factors were very similar and will be referred to as "identical" factors. These factors received a Roman numeral designation, as indicated in Table 11.

The Occupational Values instrument was compared by the RELATE factor comparison method. Four of these factors were considered identical (RELATE value .9 or better). Two of these Occupational

Values factors were called "similar" (RELATE value of .80 to .90) and they received an alphabetic designation. For example, similar factor "A" consisted of original factor OVAL 12 in Stage I and factor OVAL 11 in Stage III. The unique factors in each sample are listed below these on Table 11, having no comparable factor in the other sample.

In the Italian 10 year old sample, five Sentence Completion factors were identical across stages. There were four identical factors in the Occupational Values comparison and two of the six comparisons were similar. These results indicate that the factor structures in the two samples were highly similar. The coping and motivation patterns represented by these factors may remain stable in the Italian 10 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Twenty-two percent of the factors showed differences. Males tended to report themselves as coping more effectively with anxiety. Males also confronted and engaged problems in interpersonal relations more than females. As for Occupational Values, females more than males preferred pleasant surroundings and associates rather than creativity. Also, girls more than boys valued esthetics.

In Stage III, twenty-three percent of the factors showed differences due to sex. Males in this sample coped more effectively with aggression than females. The boys more than girls also had more positive affect toward task achievement, along with hostile, not depressive affect toward interpersonal relations and a negative attitude about anxiety-arousing situations. On Occupational Values, females valued independence, surroundings and associates rather than prestige more than boys. On the self-report of coping, males indicated they engaged in more coping behavior than girls.

Only one factor showed a similar sex difference across both cohorts. This indicated that females more than males prefer pleasant surroundings and associates.

SES DIFFERENCES

In Stage I, twenty-two percent of the factors had differences due to socioeconomic status. Lower-class students expressed more negative and positive feelings, rather than neutral affect, toward authority. On Occupational Values, lower-class children put more value on success, prestige and economic returns rather than following father's occupation, compared with the middle class. Lower class more than middle-class children valued esthetics. Lower-class children also reported more defensive behavior than middle-class children.

In the Stage III sample, twenty-three percent of the factors evidenced socioeconomic differences. Lower-class children coped better with aggression than middle-class children, in a neutral not hostile fashion. On Occupational Values the middle class preferred altruism and self-satisfaction over management or economic returns, more than the lower-class students. Lower-class children more than middle-class children preferred success and prestige rather than following father's occupation. Middle-class students valued esthetics more than lower-class students.

Comparing across samples, there were two identical factors that showed socioeconomic differences. In both samples, lower-class students more than middle-class students preferred success, prestige, and economic returns to following father's occupation. The other factor showed opposite effects in the two samples. In the first sample, lower-class students preferred esthetics, but in the second sample the middle class preferred esthetics. Overall, there were almost no consistent social class differences across both samples.

SUMMARY OR REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement in Stage I are listed in Tables 16a and 16b. Good readers coped well with anxiety. These students valued esthetics and wanted to attain high educational aspirations. They had high aptitude scores and were rated by their peers as good copers. Additionally, they valued following father's occupation rather than success, prestige or economic returns; and they valued security rather than prestige. High occupational aspirations were also correlated with high reading achievement.

The predictors of reading achievement in Stage III are presented in Tables 17a and 17b. Coping with interpersonal relations significantly predicted reading achievement. Good readers also valued intellectual stimulation, creativity and variety. These students had high educational aspirations and aptitude scores. Their peers gave them high coping scores. High occupational aspirations were also correlated with reading scores.

The student's reading scores had some similar predictors or correlates in both samples. In both samples, educational and occupational aspirations were positively related to reading achievement. Peer ratings on coping, and aptitude, were also predictive of good reading abilities.

Math Achievement

The predictors of math achievement in Stage I appear in Tables 18a and 18b. Students with high math scores did not cope effectively with task achievement and showed negative, not neutral affect. They valued following father's occupation rather than success, prestige or economic returns. Students who received good math scores also had high aptitude scores and sought to attain high educational goals. Their peers rated them as good copers.

In Stage III (Tables 19a and 19b), students who were good at math did not cope well with aggression (SC); however, they reported coping well with all types of problems on a self-report measure (SAI). They valued intellectual stimulation, creativity and variety. High educational aspirations and aptitude scores were predictors of math achievement. Peer ratings did not, however, predict math scores.

The predictors that were consistent in the two samples of students were educational aspirations and aptitude scores. The coping scores and values that predicted achievement were different in the two samples.

Grade Point Average

Tables 20a and 20b present the predictors of Grade Point Average in Stage I. Students who received good grades had positive affect toward interpersonal relations and task achievement. These students valued esthetics and also preferred following father's occupation rather than success, prestige or economic returns. High educational aspirations and aptitude scores were related to high grades. These students' peers rated them as good copers. Occupational aspirations were also correlated with grades.

In Stage III (Tables 21a and 21b) teachers gave good grades to students who coped well with anxiety, and who valued altruism and self-satisfaction rather than management or economic returns. Aptitude and educational aspirations affected grades. Peers, too, rated those students who won high grades from teachers as good copers. Grades were correlated, as well, with occupational aspirations.

Consistent predictors or correlates in the two samples were educational and occupational aspirations. Peer ratings and aptitude scores also predicted teacher grades in both samples. The predictive coping values factors, however, were different in the two samples.

PERCENTAGE OF VARIANCE

In order to assess the practical usefulness of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivational variables. The unique variance of both aptitude and coping/motivation variables was that increment in variance "explained " beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

Aptitude was an important predictor in Stage I, uniquely accounting for 17.2% of the variance in reading, 12.7% in math, and 12.2% in GPA. Coping/motivation accounted uniquely for 6.4% in reading, 4.1% in math, and 10.2% in GPA. The total variance accounted for by both sets of variables ranged from 20% to 30%.

In Stage III, aptitude and coping/motivation variables contributed about equally to each criterion. Aptitude uniquely accounted for 8.5% of reading, 10.5% of math, and 12.8% of GPA. Coping/motivation uniquely accounted for 10.5% of reading, 7.6% of math, 17.1% of GPA. The total variance explained ranged from approximately 22% to 37%. These results indicate that both aptitude and coping/motivation were important predictors of 10 year olds' school success in Italy.

Table 1

STAGE I

SENTENCE COMPLETION

ITALY - 10 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Attitude - Authority	-.002	.004	.129	-.031	.084	-.058	-.031	-.012	.680*	.011
40 Att.- Interpersonal Relations	.001	-.130	.121	.019	-.040	.039	.091	.045	.637*	-.025
41 Att.- Task Achievement	-.009	.086	-.062	.055	-.081	-.130	.058	.015	.618*	.101
43 Aggression - Stance	-.007	.880*	.094	-.010	-.001	.049	-.050	.036	.163	-.052
44 Aggression - Engagement	-.141	.705*	.120	-.060	.028	.087	-.164	.067	.287	-.101
45 Aggression - Coping Eff.	.055	.964*	.041	.061	-.032	-.048	.027	-.019	-.034	.006
46 Aggression - Neg. Affect	-.047	-.844*	.018	-.115	.043	.095	-.164	.108	.223	-.066
47 Aggression - Pos. Affect	.047	.844*	-.018	.115	-.043	-.095	.164	-.108	-.223	.066
48 Authority - Stance	.023	.087	.845*	.103	.059	-.007	-.065	.004	.119	.009
49 Authority - Engagement	.096	.038	.760*	-.093	.057	-.002	.009	.034	.049	-.031
50 Authority - Coping Eff.	.041	.061	.856*	.126	-.070	.033	.037	-.328	.062	.034
51 Authority - Neg. Affect	-.086	-.048	-.529*	-.096	.139	-.059	-.174	.729*	.059	-.044
52 Authority - Neutral Aff.	.110	.064	.443*	.091	-.073	.055	.145	-.837*	-.052	.033
53 Authority - Pos. Affect	-.117	-.073	.313	.011	-.270	.009	.108	.559*	-.023	.042
54 Anxiety - Stance	.946*	.009	.069	.037	.038	.003	.049	-.052	-.024	-.004
55 Anxiety - Engagement	.759*	.001	.046	.045	.045	-.046	-.110	-.072	-.000	-.080
56 Anxiety - Coping Eff.	.949*	.019	.029	.013	.017	-.017	.052	.001	-.014	-.017
57 Anxiety - Neg. Affect	-.953*	.003	-.015	-.002	-.008	-.043	-.083	.027	-.020	-.050
58 Anxiety - Neutral Aff.	.953*	-.003	.015	.002	.008	.043	.083	-.027	.020	.050

STAGE I

SENTENCE COMPLETION

ITALY - 10 Year Olds (continued)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	-.025	-.059	.021	.045	.040	.925*	.023	-.023	-.086	.086
60 IPR - Engagement	.045	-.040	.008	.205	.058	.900*	-.007	-.036	-.070	-.063
61 IPR - Coping Eff.	.016	.074	.061	.851*	-.000	.350	.065	-.070	.040	.029
62 IPR - Negative Affect	-.029	-.071	-.060	-.971*	.015	.025	-.051	-.007	.036	-.091
63 IPR - Neutral Affect	.068	.071	.017	.974*	-.014	.021	.031	-.053	.053	-.032
64 IPR - Positive Affect	-.144	.002	.164	-.008	-.002	-.174	.075	.227	-.338	.468*
65 Task Achievement - Stance	.071	-.040	.041	-.005	.899*	.033	.246	-.006	.049	.038
66 Task Ach. - Engagement	.016	-.054	-.012	-.043	.875*	.042	-.088	.015	-.126	-.077
67 Task Ach. - Coping Eff.	.113	.007	.026	.064	.669*	.071	.633*	-.087	.123	.188
68 Task Ach. - Neg. Affect	-.085	-.079	.001	-.100	-.095	-.027	-.922*	.078	-.113	-.123
69 Task Ach. - Neutral Aff.	.043	.073	.030	.030	.071	-.039	.884*	-.003	-.021	-.419*
70 Task Ach. - Pos. Affect	.054	-.005	-.053	.096	.021	.105	-.118	-.109	.201	.877*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

ITALY - 10 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.127	.045	-.120	.069	.164	.064	-.125	.031	.550*	-.139
65 T.A. - Stance	.895*	.012	.074	.093	-.054	-.011	.011	.059	.145	.039
66 T.A. - Engagement	.845*	.076	.062	.116	.056	.070	.057	.044	.112	.017
67 T.A. - Aid/Advice	.788*	.149	.039	.157	-.016	.028	.108	-.003	.031	-.083
68 T.A. - Coping Effect	.914*	.034	.048	.169	-.051	.012	.093	.056	.084	.111
69 T.A. - Hostile Affect	-.580*	.002	-.027	-.119	-.176	-.128	.101	-.088	-.079	.118
70 T.A. - Depressive Aff.	-.629*	.000	-.045	.025	.122	.338	-.114	.068	.293	-.231
71 T.A. - Neutral Aff.	.845*	.012	.110	.022	.048	-.237	-.055	-.035	-.190	-.054
72 T.A. - Positive Aff.	-.160	-.037	-.173	.083	-.085	.195	.214	.108	.079	.417*
73 Interpersonal Relations Attitude	.115	-.095	.072	.110	-.041	.193	.117	.634*	.132	.174
74 I.R. - Stance	.123	.863*	.104	.113	.019	.050	.013	-.108	-.034	.091
75 I.R. - Engagement	.045	.925*	.092	.144	.001	.081	.084	-.008	-.024	.014
76 I.R. - Aid/Advice	.044	.926*	.097	.155	-.004	.082	.077	-.008	-.023	.018
77 I.R. - Coping Effect	.056	.924*	.061	.131	.034	-.140	.017	.029	.095	.011
78 I.R. - Hostile Affect	.012	-.515*	-.009	.032	-.079	.152	-.044	-.234	-.104	.476*
79 I.R. - Depressive Aff.	-.078	-.259	-.001	.048	.029	.465*	.054	.210	-.194	-.587*
80 I.R. - Neutral Aff.	.051	.652*	.023	-.069	.061	-.472*	.014	.066	.282	.016
81 I.R. - Positive Aff.	-.027	.015	-.094	.029	-.084	-.071	-.101	-.088	-.302	-.039

STAGE III

SENTENCE COMPLETION

Table 2 (continued) ITALY - 10 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
82 Authority - Attitude	.160	-.016	.051	.128	-.044	.108	.199	.518*	.318	-.071
83 Auth. - Stance	.119	.190	.104	.830*	.033	-.073	-.019	.036	-.099	.016
84 Auth. - Engagement	.238	.061	.080	.848*	-.036	.078	-.009	.084	.120	.071
85 Auth. - Aid/Advice	.222	.102	.092	.880*	-.024	.069	-.029	.043	.044	.047
86 Auth. - Coping Eff.	.165	.180	.120	.792*	-.057	-.329	.090	.066	.231	-.099
87 Auth. - Hostile Aff.	-.070	-.037	-.001	-.147	.113	.369	-.112	-.083	-.661*	.122
88 Auth. - Depress. Aff.	-.057	-.072	-.051	-.499*	-.033	.520*	-.072	.138	.421*	-.060
89 Auth. - Neutral Aff.	.096	.089	.047	.549*	-.043	-.710*	.138	-.072	.040	-.023
90 Auth. - Positive Aff.	-.000	-.000	.000	-.000	.000	.000	-.000	-.000	.000	.000
91 Anxiety - Attitude	-.050	-.046	-.012	-.032	-.159	.028	-.002	-.069	.069	-.450*
92 Anx. - Stance	.075	.077	.840*	.060	-.007	.074	-.055	-.139	-.155	-.014
93 Anx. - Engagement	.038	.018	.801*	.093	.075	.013	-.076	.209	.002	.253
94 Anx. - Aid/Advice	.028	.003	.791*	.088	.057	-.021	-.083	.246	.019	.270
95 Anx. - Coping Eff.	.129	.187	.845*	.061	.037	-.084	.086	.093	-.046	-.220
96 Anx. - Hostile Aff.	-.019	-.145	-.257	.007	-.085	.164	-.024	-.773*	.168	.204
97 Anx. - Depressive Aff.	-.106	-.003	-.677*	-.077	.009	-.017	-.127	.555*	-.114	.112
98 Anx. - Neutral Aff.	.109	.135	.821*	.076	.040	-.120	.146	.066	.065	-.249
99 Anx. - Positive Aff.	.033	-.104	.093	-.045	.096	.049	-.031	.043	-.456*	.070

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

ITALY - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.002	.020	.176	-.054	.834*	-.068	.059	-.100	.025	.067
101 Agg. - Engagement	.023	.018	-.006	-.020	.885*	.029	.272	.075	-.013	.081
102 Agg. - Aid/Advice	.056	.066	-.036	.007	.871*	.048	.261	.022	.024	.010
103 Agg. - Coping Effect	.072	.127	.083	-.013	.464*	-.055	.780*	.096	.057	.004
104 Agg. - Hostile Aff.	-.072	-.077	.019	-.027	-.117	-.061	-.949*	-.067	-.030	-.030
105 Agg. - Depressive Aff.	.031	.057	-.176	-.005	-.330	.392	.357	.018	-.082	.092
106 Agg. - Neutral Aff.	.062	.054	.071	.031	.297	-.137	.841*	.063	.075	-.016
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR ITALY 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

ITALY	I		II		III		IV		V		VI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	3	2	5	3	4	4	2	5	1		
64 Task Achievement-Attitude												
65 TA - Stance									.90	.90		
66 TA - Engagement									.88	.85		
*67 TA - Aid/Advice										.79		
68 TA - Coping Eff.									.67	.91		
**69 TA - Hostile Aff.									(-.10)	-.58		
**70 TA - Depress. Aff.										-.63		
71 TA - Neutral Aff.									(.07)	.85		
72 TA - Positive Aff.												
73 Interpersonal Relations - Attitude												
74 IPR - Stance							(.05)	.86				
75 IPR - Engagement							(.21)	.93				
*76 IPR - Aid/Advice								.93				
77 IPR - Coping Eff.							.85	.92				
**78 IPR - Hostile Aff.							-.97	-.52				
**79 IPR - Depress. Aff.								(-.26)				
80 IPR - Neutral Aff.							.97	.65				
81 IPR - Positive Aff.												

Table 3
(continued)

ITALY	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	3	2	5	3	4	4	2	5	1
82 Authority - Attitude										
83 Auth. - Stance					.85	.83				
84 Auth. - Engagement					.76	.85				
*85 Auth. - Aid/Advice						.88				
86 Auth. - Coping Eff.					.86	.79				
**87 Auth. - Hostile Aff.					-.53	(-.15)				
**88 Auth. - Depress. Aff.						-.50				
89 Auth. - Neutral Aff.					.44	.55				
90 Auth. - Positive Aff.										
*91 Anxiety - Attitude										
92 Anx. - Stance	.95	.84								
93 Anx. - Engagement	.76	.80								
*94 Anx. - Aid/Advice		.79								
95 Anx. - Coping Eff.	.95	.85								
**96 Anx. - Hostile Aff.	-.95	(-.26)								
**97 Anx. - Depressive Aff.		-.68								
98 Anx. - Neutral Aff.	.95	.82								
**99 Anx. - Positive Aff.										

Table 3
(continued)

ITALY	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	3	2	5	3	4	4	2	5	1
100 Aggression - Stance			.88	.83						
101 Agg. - Engagement			.71	.89						
*102 Agg. - Aid/Advice				.87						
103 Agg. - Coping Eff.			.96	.46						
**104 Agg. - Hostile Aff.			-.84	(-.18)						
**105 Agg. - Depress. Aff.				(-.33)						
*106 Agg. - Neutral Aff.										
107 Agg. - Positive Aff.			.84							

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* This variable was only present in the Stage III instrument.

** In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable -- "Negative Affect."

Table 4

STAGE I

OCCUPATIONAL VALUES

ITALY - 10 YEAR OLDS	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.097	.293	-.153	.598*	.010	.317
15 Esthetics	-.023	-.116	.007	-.019	-.082	-.946*
16 Independence	.052	.140	-.130	-.759*	-.034	.140
17 Management	-.442*	-.224	.177	-.111	-.090	.096
18 Success	-.275	-.268	.655*	.031	-.098	.132
19 Self-Satisfaction	.038	.191	-.325	.508*	.315	.022
20 Intellectual Stimulation	.663*	-.092	.022	.429*	-.113	.113
21 Creativity	.552*	-.475*	.002	-.068	-.086	.160
22 Security	-.174	-.054	.124	.073	.880*	.020
23 Prestige	-.310	-.217	.415*	-.132	-.509*	-.217
24 Economic Returns	-.400*	-.130	.460*	-.334	.209	.071
25 Surroundings	.095	.793*	-.023	.091	.034	.168
26 Associates	-.000	.856*	-.043	-.045	-.057	.006
27 Variety	.715*	.040	.070	-.231	-.032	-.015
28 Follow Father	-.277	-.223	-.820*	.003	-.135	.149

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

ITALY - 10 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	-.052	.685*	.054	-.213	.103	-.018
15 Esthetics	-.024	-.107	-.154	.069	-.914*	.015
16 Independence	.626*	-.189	-.037	-.025	-.057	-.255
17 Management	-.036	-.676*	-.173	-.301	.123	.096
18 Success	-.205	-.234	-.260	.722*	.127	.019
19 Self-Satisfaction	.036	.701*	-.224	-.089	.192	.082
20 Intellectual Stimulation	-.230	.309	.641*	.035	.191	.213
21 Creativity	-.220	-.101	.797*	-.030	-.084	-.193
22 Security	-.036	-.017	-.169	.055	-.051	.856*
23 Prestige	-.448*	-.076	-.061	.509*	-.248	-.456*
24 Economic Returns	-.305	-.559*	-.294	.261	.218	-.031
25 Surroundings	.753*	.060	-.029	-.131	-.066	.175
26 Associates	.779*	.219	-.107	.161	.146	-.005
27 Variety	.334	.061	.622*	-.073	.211	-.178
28 Follow Father	-.369	.020	-.310	-.676*	.267	-.161

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR ITALY 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.210	.255	.941**	.005	-.066	.026
12	.846*	.405	-.297	.176	.033	-.019
13	-.052	-.248	.076	.949**	.089	.144
14	-.473	.831*	-.118	.163	.098	.187
15	.111	-.124	-.016	-.174	.015	.970**
16	.036	-.055	.078	-.105	.988**	-.044

---

* Similar factors
** Identical factors

Table 7

ITEM COMPARISON FOR ITALY 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

ITALY	VI		A		VII		B		VIII		IX	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	13	12	11	13	14	14	12	15	16	16	15
14 Altruism							.60	.69				
15 Esthetics											-.95	-.91
16 Independence			(.14)	.63			-.76	(-.19)				
17 Management	-.44	(-.17)					(-.11)	-.68				
18 Success					.66	.72						
19 Self-Satisfaction							.51	.70				
20 Intell. Stimula.	.66	.64					.43	(.31)				
21 Creativity	.55	.80	-.48	(-.22)								
22 Security									.88	.86		
23 Prestige			(-.22)	-.45	.42	.51			-.51	-.46		
24 Economic Returns	-.40	(-.29)			.46	(.26)	(-.33)	-.56				
25 Surroundings			.79	.75								
26 Associates			.86	.78								
27 Variety	.72	.62										
28 Follow Father					-.82	-.68						

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

ITALY - 10 Year Olds	Loadings Factor 17	Factor 18
Sub-Scores		
1 Active Coping	.780*	.036
2 Passive Coping	.855*	-.011
3 Active Defensive	-.151	.872*
4 Passive Defensive	.414*	.650*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

ITALY - 10 Year Olds Sub-Scores	Factor Loading Factor 17
37 Task Achievement	.414*
38 Authority	.773*
39 Aggression	.636*
40 Interpersonal Relations	.547*
41 Anxiety	.365

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

ITALY - 10 Year Olds

COMMON FACTORS

New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1*	3*	Copes with Anxiety
II	C(SC)	2	5	Copes with Aggression
III	C(SC)	3	4	Copes with Authority
IV	C(SC)	4	2	Copes with Interpersonal Relations
V	C(SC)	5	1	Copes with Task Achievement
VI	OVAL	11	13	Values Intellectual Stimulation, Creativity, and Variety (Doesn't value Management and Economic Returns).
VII	OVAL	13	14	Values Success and Prestige: doesn't value Following Father's occupation. (Values Economic Returns)
VIII	OVAL	15	16	Values Security; doesn't value Prestige.
IX	OVAL	16	15	Doesn't value Esthetics
A	OVAL	12	11	Values Surroundings and Associates. (Values Independence; doesn't value Creativity and Prestige.)
B	OVAL	14	12	Values Altruism and Self-satisfaction. (Values Intellectual Stimulation; doesn't value Independence, Management, and Economic Returns.)

UNIQUE FACTORS

Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
C(SC)	6	-	Copes with Interpersonal Relations via Stance and Engagement.
C(SC)	7	-	Copes effectively with Task Achievement with neutral, not negative Affect.
C(SC)	8	-	Positive or negative, not neutral Affect toward Authority.
C(SC)	9	-	Positive attitudes toward Authority, Interpersonal Relations, and Task Achievement.
C(SC)	10	-	Positive Affect toward Interpersonal Relations; positive, not neutral Affect toward Task Achievement.
C(SC)	-	6	Depressive, not neutral Affect toward Interpersonal Relations and Authority.
C(SC)	-	7	Copes effectively with Aggression with neutral, not hostile Affect.
C(SC)	-	8	Positive attitudes toward Interpersonal Relations and Authority; Depressive, not hostile Affect toward Anxiety.
C(SC)	-	9	Positive attitude toward Task Achievement; Depressive, not hostile Affect toward Authority; lack of positive Affect toward Anxiety.
C(SC)	-	10	Positive Affect toward Task Achievement; hostile, not depressive Affect toward Interpersonal Relations; negative attitude toward Anxiety.

---

* These numbers appear in the Factor Analysis Tables 1, 2, 4, 5.

** The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

ITALY - 10 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with neutral, not negative Affect.	p < .001
C(SC)6	F < M	Copes with Interpersonal Relations via Stance and Engagement	p < .013
[s]OVAL 12-A	F > M	Values Surroundings and Associates; doesn't value Creativity.	p < .001
OVAL 16-IX	F > M	Values Esthetics	p < .001

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The Sex difference on this factor is similar to one in the other sample.

Table 13

SIGNIFICANT SEX DIFFERENCES*

ITALY - 10 Year Olds - Stage III

			Probability Level
C(SC)5-II	F < M**	Copes effectively with Aggression	p < .021
C(SC)10	F < M	Positive Affect toward Task Achievement, with hostile, not depressive Affect toward Interpersonal Relations; negative attitude toward Anxiety.	p < .016
[s]OVAL 11-A	F > M	Values Independence, Surroundings, and Associates; doesn't value Prestige.	p < .001
[n]C(SAI)17	F < M	Copes effectively	p < .042

---

* 4/17 (23%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The Sex difference on this factor is similar to one in the other sample.

[n] = No comparable instrument in the other sample.

Table 14

SIGNIFICANT SES DIFFERENCES*

ITALY - 10 Year Olds - Stage I

			Probability Level
C(SC)8	L > M**	Negative and positive with no neutral Affect toward Authority.	$p < .054$
[i]OVAL 13-VII	L > M	Values Success, Prestige, and Economic Returns; doesn't Follow Father.	$p < .001$
OVAL 16-IX	L > M	Values Esthetics	$p < .005$
[n]C(SAI)18	L > M	Self-report of defensive coping.	$p < .022$

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample.

Table 15

SIGNIFICANT SES DIFFERENCES*

ITALY - 10 Year Olds - Stage III

			Probability Level
C(SC)7	L > M**	Copes effectively with Aggression with neutral, not hostile Affect.	$p < .055$
OVAL 12-B	L < M	Values Altruism and Self-satisfaction; doesn't value Management and Economic Returns.	$p < .006$
[i]OVAL 14-VII	L > M	Values Success and Prestige; doesn't Follow Father.	$p < .001$
OVAL 15-IX	L < M	Doesn't value Esthetics.	$p < .023$

---

* 4/17 (23%) of the significance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

Table 16a.

Stage I

REGRESSION ANALYSIS

ITALY - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)1-I	5.11	.03	.17	.03	.03
-OVAL 16-IX	5.94	.02	.25	.06	.03
[i]ED ASP	16.61	.001	.38	.14	.08
[i]RAVEN	43.04	.001	.56	.31	.17
[i]BRS	13.01	.001	.60	.36	.05

Additional Explanatory Variables:

	pr	p	r	p
-OVAL 13-VII			-.16	.05
OVAL 15-VIII			.17	.05
[i]OCC ASP	.20	.007		

---

[i] = An identical predictor or explanatory factor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ITALY - 10 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

C(SC)1-I = Copes with Anxiety

-OVAL 16-IX[*] = Values Esthetics

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

-OVAL 13-VII = Values Following Father's occupation; doesn't value Success, Prestige, and Economic Returns.
OVAL 15-VIII = Values Security; doesn't value Prestige.

[i]OCC ASP = Occupational Aspiration

---

[i] = An identical predictor or explanatory factor across samples.

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

ITALY - 10 Year Olds			CRITERION: Reading Achievement		
Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)2-IV	4.01	.05	.15	.02	.02
OVAL 13-VI	3.70	.056	.20	.04	.02
[i]ED ASP	25.44	.001	.40	.16	.12
[i]RAVEN	20.06	.001	.50	.25	.09
[i]BRS	11.85	.001	.54	.29	.05

Additional Explanatory Variables:

	pr	p	r	p
[i]OCC ASP			.20	.05

---

[i] = An identical predictor or explanatory factor across samples.

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ITALY - 10 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

C(SC)2-IV = Copes with Interpersonal Relations.

OVAL 13-VI = Values Intellectual Stimulation, Creativity, and Variety.

[1]ED ASP = Educational Aspiration

[1]RAVEN = Raven Progressive Matrices

[1]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[1]OCC ASP = Occupational Aspiration

---

[1] = An identical predictor or explanatory factor across samples.

Table 18a.

Stage I

REGRESSION ANALYSIS

ITALY - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)7	6.85	.010	.19	.04	.04
-OVAL 13-VII	4.10	.044	.24	.06	.02
[i]ED ASP	6.75	.010	.31	.10	.04
[i]RAVEN	28.06	.001	.47	.22	.13
BRS	8.58	.004	.51	.26	.04

Additional Explanatory Variables:

---

[i] = An identical predictor or explanatory factor across samples.

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ITALY - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

-C(SC)7* = Does not cope effectively with Task Achievement; with negative, not neutral Affect.

-OVAL 13-VII = Values Following Father's occupation; doesn't value Success, Prestige, and Economic Returns.

[1]ED ASP = Educational Aspiration

[1]RAVEN = Raven Progressive Matrices

BRS - Behavior Rating Scale

Additional Explanatory Variables:

---

[1] = An identical predictor or explanatory factor across samples.

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

ITALY - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	P	Multiple R	R^2	R^2 Change
-C(SC)5-II	5.83	.02	.18	.03	.03
[n]C(SAI)17	3.94	.05	.23	.05	.02
OVAL 13-VI	5.15	.02	.28	.08	.03
[i]ED ASP	6.49	.01	.33	.11	.03
[i]RAVEN	23.46	.001	.46	.22	.10
BRS	2,47	NS			

Additional Explanatory Variables:

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ITALY - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

-C(SC)5-II[*] = Does not cope with Aggression

[n]C(SAI)17 = Copes effectively

OVAL 13-VI = Values Intellectual Stimulation, Creativity, and Variety.

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

---

[n] = No comparable instrument in the other sample.

[i] = An identical predictor or explanatory factor across samples.

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

ITALY - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)10	5.84	.017	.18	.03	.03
-OVAL 16-IX	5.27	.023	.25	.06	.03
-OVAL 13-VII	4.38	.038	.29	.08	.02
[i]ED ASP	21.77	.001	.43	.19	.10
[i]RAVEN	30.18	.001	.56	.31	.12
[i]BRS	92.25	.001	.74	.55	.24

Additional Explanatory Variables:

	pr	p	r	p
[i]OCC ASP	.16	.034		

---

[i] = An identical predictor or explanatory factor across samples.

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ITALY - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)10 = Positive Affect toward Interpersonal Relations; positive, not neutral Affect toward Task Achievement.

-OVAL 16-IX[*] = Values Esthetics

-OVAL 13-VII = Values Following Father's occupation; doesn't value Success, Prestige, and Economic Returns.

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scales

Additional Explanatory Variables:

[i]OCC ASP = Occupational Aspiration

---

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

ITALY - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)3-I	3.93	.05	.15	.02	.02
OVAL 12-B	15.46	.001	.31	.10	.08
[i]ED ASP	32.97	.001	.49	.24	.14
[i]RAVEN	35.88	.001	.61	.37	.13
[i]BRS	24.78	.001	.67	.45	.08

Additional Explanatory Variables:

	pr	p	r	p
[i]OCC ASP			.17	.05

---

[i] - An identical predictor or explanatory factor across samples.

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ITALY - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)3-I = Copes with Anxiety

OVAL 12-B = Values Altruism and Self-satisfaction; doesn't value Management and Economic Returns.

[1]ED ASP = Educational Aspiration

[1]RAVEN = Raven Progressive Matrices

[1]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[1]OCC ASP = Occupational Aspiration

---

[1] = An identical predictor or explanatory factor across samples.

Table 22

PERCENT OF VARIANCE EXPLAINED

ITALY - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	17.2%	12.7%	12.2%
Coping/Motivation (unique)	6.4%	4.1%	10.2%
Total	31.4%	22.2%	30.9%

ITALY - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	8.5%	10.5%	12.8%
Coping/Motivation (unique)	10.5%	7.6%	17.1%
Total	24.7%	21.6%	36.8%

Table 23

CORRELATIONS AMONG THE CRITERIA

ITALY - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.46		.40
GPA	.51		

ITALY - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.40		.26
GPA	.53		

ITALY - 14 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Italian 14 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, Views of Life, and the Social Attitudes Inventory. The factor comparison findings are then presented, indicating the degree of correspondence between the two samples of Italian students. Sex and socioeconomic status differences are described next. Finally, the regression analyses are delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas (e.g., aggression variables loading on one factor, authority variables on another), although factors were not always as pure in this respect, as in other national samples. Unit weights were constructed using those variables having a factor loading $\leq$ .40.

The Stage I analysis appears in Table 1. Factors 1, 2, and 4 represent coping with anxiety, aggression, and authority, respectively. Coping with interpersonal relations is represented in Factors 3 and 7; factor 3 represents coping effectiveness with neutral, not negative affect, whereas factor 7 better depicts the coping sequence, including stance and engagement. Coping with task achievement loaded on two factors, also: Factors 5 and 6.

The Stage III factor analysis (Table 2) yielded four major factors corresponding to coping in each of the behavior areas of anxiety, authority, interpersonal relations, and task achievement. Coping with aggression, however, is loaded on both factors 5 and 6; the former shows coping effectiveness and affect, whereas the latter shows stance, engagement, and coping effectiveness. The remaining factors, in both stages, tended to have variable loadings grouped according to sub-aspects of the behavioral areas.

Despite the fact that certain behavior areas were represented in two factors, results across samples were still similar enough to facilitate a comparison of five major factors. These factors are illustrated in Table 3. While program RELATE could not be run due to slightly different numbers of variables in the two stages, all five factors are considered "identical," indicating a relatively stable "Italian" construct system at age 14 that defines coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\leq$ .40 were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that three of the six factors were "identical," having a cosine of .9 or better (interpreted like a correlation coefficient). Table 7 depicts the item comparison of these three factors across the two stages. The results of this comparison indicated some similarity in constructs across time for Italian 14 year old students.

Views of Life

The Views of Life instrument was used only in Stage III. The factor analysis of these variables yielded eight factors and is depicted in Table 8.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This is a self-report measure of coping effectiveness. Two factors emerged: positive coping, and ineffective or defensive responding.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10. One factor emerged: effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments, which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 is designed to show the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)8 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content. The first five factors were quite similar, and will be referred to as "identical" factors. These factors have a Roman numeral designation in Table 11.

The Occupational Values instrument was compared with the RELATE factor comparison method. Three of these factors were "identical" (RELATE value of .80 to .90) and they received Roman numeral designations. For example, identical factor VI consisted of original factors OVAL 11 in both samples. The unique factors in each sample are listed below these, having no comparable factor in the other sample.

In the Italian 14 year old sample, five Sentence Completion factors were identical across stages. Three of the six Occupational Values comparisons were identical. These results indicated that the factor structures in the two samples were similar in many respects. The coping and motivation patterns represented by these factors may remain stable over time in the Italian 14 year old student population.

SEX DIFFERENCES

There were many significant sex differences among Italian 14 year olds. In Stage I (Table 12), males tended to report themselves as coping more effectively in four of the five behavior areas; anxiety, aggression, interpersonal relations, and authority. In terms of Occupational Values, males placed greater value on success, prestige, economic returns, creativity, and following father's occupation . Females, on the other hand, more highly valued altruism, intellectual stimulation, variety, surroundings, and associates.

In Stage III (Table 13), males coped better with task achievement and authority. They also reported more positive attitudes toward persons in authority and toward anxiety-arousing situations although, at the same time, they also revealed hostile, not positive affect when made to feel anxious. In a work setting, males placed greater value on success, prestige, economic returns, management, creativity, and following father's occupation. Females more highly valued intellectual stimulation, variety, surroundings, associates, and security. There were more sex differences on the Views of Life. Females expressed a greater belief in their control over their academic fates. They also placed greater value on work for its own sake rather than for the rewards it may bring, and expressed a greater preference than males for independent action. Males had a more positive self-concept and expressed a greater preference for self-initiation of action. Males also had a more external locus of control, although they preferred competition, and preferred to work by themselves.

There were three identical factors which showed similar sex differences across stages. Males coped more effectively with authority and placed more value on success, prestige, and economic returns, whereas females more highly valued intellectual stimulation and variety. In general, it appears that Italian males learn more effective coping skills than females, since all six differences on coping factors favored males. In addition, there were consistent sex differences in Occupational Values of males and females. Males placed greater value on success, prestige, and financial gain, as well as following in their father's line of work. Italian males were much more conscious of external status and reward. Females, on the other hand, were much more concerned with the immediate environment, desirous of work which is intellectual stimulating, and providing a variety of tasks. They also more highly valued pleasant surroundings and friendly associates.

SES DIFFERENCES

Stage I social class differences are listed in Table 14. Middle-class students tended to cope more effectively with aggression, and reported less defensive coping on the SAI, than did the lower class. They also expressed a more positive, not neutral affect toward task achievement. In addition, middle-class students placed greater value on altruism, independence, and following father's occupation, whereas lower-class students more highly valued success, prestige, economic returns, management, self-satisfaction, and security. There were contradictory findings regarding the value of intellectual stimulation and variety. Middle-class students valued these variables more highly, in contrast to success, prestige, and economic returns, whereas lower-class students more highly valued them in contrast to following father's occupation.

There were fewer significant social class differences in Stage III (see Table 15). Middle-class students placed greater value on creativity, prestige, and following father's occupation, while the lower class more highly valued security. In addition, the middle class expressed a greater preference to work quickly, and to be more active under stress.

Across stages, there was only one common SES difference in the Italian 14 year old samples. Middle-class students consistently placed greater value on following their father's line of work than did the lower class.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. Good readers coped well with interpersonal relations and reported less defensive behavior on the SAI than did poorer readers. These students placed higher value on self-satisfaction and security and less value on management. In addition, better readers had higher aptitude scores, as well as higher educational and occupational aspirations. They were also rated highly by their peers on the Behavior Rating Scale. Although none of the Sentence Completion scores were significant predictors, there were even more predictors of reading achievement in Stage III (Tables 17a and 17b), due to several significant Views of Life factors. Good readers preferred a fast rate of action and activity when under stress. They were intrinsically motivated, independent, and expressed greater internal locus of control than poorer readers, although they preferred to solve problems with others. In addition, an interest in immediate action, interpersonal relations, and emotional expressivity were positively associated with reading achievement, as was self-initiation of action and positive self-concept. Further, good readers in Stage III had high aptitude scores and high aspirations, both educationally and occupationally. These students valued surroundings and associates, but not management. Valuing creativity and prestige, but not security was also correlated with reading achievement, as was following father's occupation.

Across stages, good aptitude and high educational and occupational aspirations were the consistently significant predictors. It is interesting that the BRS, usually a powerful predictor, was not at all significant in Stage III, and accounted for only 2% of the variance in Stage I. The Italian 14 year old Stage III sample was somewhat unique, in that coping skills and peer ratings of behavior did not at all contribute to the prediction of reading achievement.

Math Achievement

Predictors of math achievement in Stage I are listed in Tables 18a and 18b. Those students who did well in math expressed positive, not neutral affect toward task achievement. They had good aptitude and high educational and occupational aspirations. They were also rated highly by their peers on the Behavior Rating Scale. In addition, good readers tend to value prestige and esthetics, but not security or management.

There were few predictors of math achievement in Stage III (see Tables 19a and 19b). Good math students preferred a fast rate of action and activity in stress situations. They expressed an internal locus of control and preferred cooperation and joint implementation of action. In addition, these students had high aptitude scores and high educational aspirations.

The only predictors of math achievement common to both samples were aptitude and educational aspirations. Sentence Completion coping scores were generally not predictive. In Stage III, the BRS was again not predictive.

Grade Point Average

Predictors of GPA for Stage I are listed in Tables 20a and 20b. Successful students had high aptitude scores and high educational and occupational aspirations. They were also very highly rated by their peers on the Behavior Rating Scale. In addition, these students tended to value self-satisfaction and security, but not esthetics or prestige.

In Stage III (Tables 21a and 21b), successful students again had good aptitude and high aspirations for both job and school. They also received good peer ratings. In addition, these students expressed a greater preference for earned status and for confrontation in coping with problems.

A comparison of the two stages shows that students with good aptitude and motivation to achieve were likely to get good grades. However, this must be qualified, due to the very powerful contribution of the peer ratings (BRS). It appears that their peers were rating these students on behaviors which also contributed greatly to teacher grades. As the BRS did not contribute much to skill achievement (not at all in Stage III), it appears that Italian teachers were especially sensitive to certain aspects of classroom behavior in assigning grades, but aspects that were different from the coping skills measured in this study.

PERCENTAGE OF VARIANCE

It is also important to consider the percent of variance accounted for by aptitude and coping/motivation variables, respectively, in accounting for success on the criterion measures. These are listed in Table 22.

Aptitude was an important predictor across all criteria in Stage I, accounting for an average of 10% of the variance. In Stage III, however, it was less predictive, accounting for 7.3% of the variance in reading, but only 3.8% in math and 3.3% in GPA.

The coping/motivation factors were more important for success in Italian 14 year olds. They accounted for an average of 18.6% in reading achievement, attributable largely to aspiration scores and the SAI in Stage I, and the Views of Life coping factors in Stage III. Coping/motivation accounted for an average of 7% of the variance in math achievement and 6% in GPA.

In sum, the coping/motivation factors were useful but not strong predictors, especially in reading achievement. On the other criteria, it was essentially the aspiration scores which primarily predicted success.

Table 1

STAGE I

SENTENCE COMPLETION

ITALY - 14 Year Olds	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Attitude - Authority	.034	.073	.002	.063	.038	-.090	.002	.768*	.009	-.012
40 Att.- Interpersonal Relations	-.111	-.011	.093	-.009	-.058	.023	-.076	.674*	-.002	.029
41 Att.- Task Achievement	.125	-.005	-.133	.064	-.004	.235	.101	.405*	.253	.061
43 Aggression - Stance	.025	.874*	.092	.024	-.000	-.010	.089	.061	-.022	-.076
44 Aggression - Engagement	-.069	.689*	-.068	-.092	.026	-.098	.023	.107	-.073	-.252
45 Aggression - Coping Eff.	.065	.949*	.085	.100	-.035	.024	.019	.013	.009	.074
46 Aggression - Neg. Affect	-.084	-.851*	-.065	-.191	.042	-.081	-.007	.048	-.050	-.219
47 Aggression - Pos. Affect	.084	.851*	.065	.191	-.042	.081	.007	-.048	.050	.219
48 Authority - Stance	.164	.115	.127	.481*	.123	.026	.064	.353	-.049	.362
49 Authority - Engagement	.109	.028	-.043	.312	-.032	-.069	.077	.348	-.071	.436*
50 Authority - Coping Eff.	.150	.139	.084	.807*	.057	.037	.035	.233	.000	.242
51 Authority - Neg. Affect	-.124	-.125	-.082	-.915*	.036	-.067	.025	.056	-.046	.093
52 Authority - Neutral Aff.	.125	.106	.094	.914*	-.040	.061	-.035	-.060	.051	-.201
53 Authority - Pos. Affect	-.011	.102	-.076	-.060	.027	.033	.066	.026	-.035	.652*
54 Anxiety - Stance	.899*	.084	.061	.068	.059	.068	.043	-.056	.062	.013
55 Anxiety - Engagement	.731*	-.054	-.018	-.001	-.010	.010	-.067	.097	-.001	.023
56 Anxiety - Coping Eff.	.926*	.042	.048	.089	.028	.061	.066	.008	.017	-.035
57 Anxiety - Neg. Affect	-.914*	-.055	-.087	-.123	-.019	-.024	-.041	.030	.021	-.014
58 Anxiety - Neutral Aff.	.914*	.055	.087	.123	.019	.024	.041	-.030	-.021	.014

STAGE I

SENTENCE COMPLETION

ITALY - 14 Year Olds (continued)		Loadings									
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
59	Interpersonal Relations - Stance	.019	.048	.242	-.089	.032	-.021	.772*	-.061	.151	.234
60	IPR - Engagement	.054	.062	.280	.026	-.018	.092	.852*	-.038	.053	.035
61	IPR - Coping Eff.	.146	.128	.823*	.067	.010	.040	.445*	.021	.037	.000
62	IPR - Negative Affect	-.081	-.064	-.972*	-.104	-.017	-.062	.007	.001	-.048	-.025
63	IPR - Neutral Affect	.106	.094	.919*	.138	.019	.044	.168	.053	-.022	-.109
64	IPR - Positive Affect	-.083	-.095	.151	-.110	-.007	.057	-.558*	-.173	.225	.429*
65	Task Achievement - Stance	.069	-.058	.013	.027	.947*	.131	.013	.032	.071	.014
66	Task Ach. - Engagement	.000	-.026	-.016	-.057	.908*	-.175	-.030	-.057	-.075	.027
67	Task Ach. - Coping Eff.	.094	-.002	.085	.073	.774*	.516*	.059	.003	.219	-.006
68	Task Ach. - Neg. Affect	-.161	-.059	-.128	-.129	-.122	-.922*	-.038	-.018	-.078	-.017
69	Task Ach. - Neutral Aff.	.090	.034	.040	.046	.011	.700*	-.024	-.040	-.691*	.046
70	Task Ach. - Pos. Affect	.055	.018	.082	.076	.111	.090	.070	.069	.930*	-.039

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

ITALY - 14 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.037	-.017	.059	.090	-.081	-.263	-.053	-.038	.264	.088
65 T.A. - Stance	.080	.823*	.065	.083	.002	-.071	.087	.204	.028	-.069
66 T.A. - Engagement	.046	.813*	-.025	.019	-.037	.020	-.090	-.010	.071	.053
67 T.A. - Aid/Advice	.134	.775*	-.008	.009	.036	.079	-.123	-.082	.043	-.008
68 T.A. - Coping Effect	.063	.889*	-.015	.126	.013	-.114	.118	-.002	-.098	.062
69 T.A. - Hostile Affect	-.082	-.156	.033	-.084	-.009	.057	.036	-.378	.096	.039
70 T.A. - Depressive Aff.	.114	-.679*	-.088	-.047	.025	-.002	-.107	-.121	.082	-.008
71 T.A. - Neutral Aff.	-.068	.631*	.125	.017	.009	.032	-.025	.630*	.027	-.090
72 T.A. - Positive Aff.	.036	-.075	-.129	.102	-.041	-.100	.156	-.630*	-.235	.137
73 Interpersonal Relations Attitude	.086	-.005	-.098	.041	.065	-.033	.479*	-.080	.285	.083
74 I.R. - Stance	.864*	.019	.050	.028	.001	.088	.066	.046	.069	.026
75 I.R. - Engagement	.926*	.022	.011	.023	.039	.100	.133	-.009	.062	-.043
76 I.R. - Aid/Advice	.931*	.022	.012	.021	.033	.092	.123	-.006	.054	-.045
77 I.R. - Coping Effect	.909*	.086	.065	.049	.100	-.057	-.019	.071	.096	.093
78 I.R. - Hostile Affect	-.554*	.011	.007	.104	-.104	.220	.145	.199	.230	.333
79 I.R. - Depressive Aff.	-.030	-.109	-.187	-.218	-.075	.045	.187	-.388	-.242	-.592*
80 I.R. - Neutral Aff.	.561*	.099	.157	.114	.167	-.271	-.226	.129	.005	.306
81 I.R. - Positive Aff.	-.007	-.056	.009	-.086	-.001	.082	-.334	.102	-.050	-.428*

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

ITALY - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.144	.084	.001	.040	.112	-.132	.097	.053	.638*	.044
83 Auth. - Stance	.156	.028	.762*	.085	.010	-.075	.219	.105	.007	-.148
84 Auth. - Engagement	.029	.029	.483*	-.060	.055	-.029	.669*	-.165	-.035	-.037
85 Auth. - Aid/Advice	.079	.139	.521*	-.046	.093	-.034	.620*	-.086	-.062	-.108
86 Auth. - Coping Eff.	.100	.044	.899*	.130	.079	-.009	.166	-.015	.033	-.060
87 Auth. - Hostile Aff.	.022	-.058	-.485*	-.201	-.178	-.087	.167	.273	.033	-.093
88 Auth. - Depress. Aff.	.013	.022	-.667*	.025	.162	.139	.010	-.258	-.107	-.031
89 Auth. - Neutral Aff.	-.027	.027	.890*	.134	.009	-.042	-.135	-.007	.059	.095
90 Auth. - Positive Aff.	-.000	.000	-.000	-.000	-.000	.000	.000	.000	.000	-.000
91 Anxiety - Attitude	.021	-.045	-.177	-.119	-.091	.050	.045	-.077	.091	.547*
92 Anx. - Stance	.033	.185	.140	.757*	-.030	-.037	-.002	-.054	-.279	.127
93 Anx. - Engagement	.134	-.089	-.065	.711*	-.108	.092	.394	.312	-.043	.011
94 Anx. - Aid/Advice	.109	-.086	-.062	.701*	-.123	.095	.411*	.298	-.005	.010
95 Anx. - Coping Eff.	.003	.103	.208	.835*	.127	-.144	-.159	-.096	.062	-.183
96 Anx. - Hostile Aff.	-.111	.024	.022	-.420*	-.208	.282	-.038	-.150	.055	.490*
97 Anx. - Depressive Aff.	.097	-.190	-.138	-.649*	.088	-.052	.165	.208	-.091	-.242
98 Anx. - Neutral Aff.	.012	.077	.134	.813*	.089	-.080	.088	-.035	.378	-.173
99 Anx. - Positive Aff.	-.021	.125	-.021	.031	-.019	-.181	-.034	-.048	-.731*	.021

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

ITALY - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.014	-.004	.041	-.042	-.186	.732*	-.096	-.029	.164	.012
101 Agg. - Engagement	.046	-.026	-.165	.001	.386	.809*	-.002	.022	-.044	.077
102 Agg. - Aid/Advice	.076	-.065	-.128	-.005	.380	.811*	-.026	-.021	-.079	.029
103 Agg. - Coping Effect	.163	-.003	.047	.010	.858*	.291	.056	.027	.040	-.045
104 Agg. - Hostile Aff.	-.083	.030	-.017	.028	-.946*	.033	-.001	-.099	.058	-.057
105 Agg. - Depressive Aff.	.047	-.102	-.065	-.069	.099	-.261	-.115	.337	-.354	.293
106 Agg. - Neutral Aff.	.059	.023	.051	.008	.901*	.103	.060	-.075	.125	-.095
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR ITALY 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	I	4	2	6	3	1	4	3	5	2
64 Task Achievement - Attitude										
65 TA - Stance									.95	.82
66 TA - Engagement									.91	.81
*67 TA - Aid/Advice										.78
68 TA - Coping									.77	.89
**69 TA - Hostile									(-.12)	
**70 TA - Depressive										-.68
71 TA - Neutral									(.01)	.63
72 TA - Positive										
73 Interpersonal Relations - Attitude										
74 IPR - Stance					(.24)	.86				
75 IPR - Engagement					(.28)	.93				
*76 IPR - Aid/Advice						.93				
77 IPR - Coping					.82	.91				
**78 IPR - Hostile					-.97	-.55				
**79 IPR - Depressive						(-.03)				
80 IPR - Neutral					.92	.56				
81 IPR - Positive										

Table 3
(continued)

ITEM COMPARISON FOR ITALY 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	6	3	1	4	3	5	2
82 Authority - Attitude										
83 Auth. - Stance							.48	.76		
84 Auth. - Engagement							(.31)	.48		
*85 Auth. - Aid/Advice								.52		
86 Auth. - Coping							.81	.90		
**87 Auth. - Hostile							-.92	-.49		
**88 Auth. - Depressive								-.67		
89 Auth. - Neutral							.91	.89		
90 Auth. - Positive										
*91 Anxiety - Attitude										
92 Anxiety - Stance	.90	.76								
93 Anxiety - Engagement	.73	.71								
*94 Anxiety - Aid/Advice		.70								
95 Anxiety - Coping	.93	.84								
**96 Anxiety - Hostile	-.91	-.42								
**97 Anxiety - Depressive		-.65								
98 Anxiety - Neutral	.91	.81								
*99 Anxiety - Positive										

Table 3
(continued)

ITEM COMPARISON FOR ITALY 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	4	2	6	3	1	4	3	5	2
100 Aggression - Stance			.87	.73						
101 Aggression - Engagement			.69	.81						
*102 Aggression - Aid/Advice				.81						
103 Aggression - Coping			.95	(.29)						
**104 Aggression - Hostile			-.85	(.03)						
**105 Aggression - Depressive				(-.26)						
*106 Aggression - Neutral										
107 Aggression - Positive			.85							

---

* This variable was only present in the Stage III instrument

** In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable - "Negative Affect"

Table 4

STAGE I

OCCUPATIONAL VALUES

ITALY - 14 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	.548*	.147	-.390	.082	-.176	-.190
15	Esthetics	-.035	-.014	.087	-.883*	.120	.047
16	Independence	-.071	.171	.807 *	.009	.009	-.002
17	Management	-.194	-.090	.007	-.022	-.076	.881*
18	Success	-.765*	-.081	-.186	-.003	.058	-.088
19	Self-Satisfaction	.389	.131	-.480*	.356	-.015	-.175
20	Intellectual Stimulation	.606*	-.225	-.145	.103	.427*	.019
21	Creativity	.284	-.638*	.176	-.055	.077	-.260
22	Security	-.298	.148	-.562*	.432 *	.097	.209
23	Prestige	-.498*	-.327	.158	-.425*	-.010	-.333
24	Economic Returns	-.744*	-.097	.048	.197	.116	.221
25	Surroundings	.188	.811*	.057	.074	.044	-.129
26	Associates	.195	.808*	.123	-.040	.121	-.126
27	Variety	.447*	-.091	.382	.212	.474*	-.124
28	Follow Father	.174	-.191	.005	.204	-.848*	.053

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

Stage III

OCCUPATIONAL VALUES

ITALY - 14 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.260	-.099	.105	-.682*	-.178	.100
15 Esthetics	.040	-.125	-.064	-.118	-.847*	.134
16 Independence	.246	.264	-.100	.397	-.407*	-.379
17 Management	-.060	-.549*	.336	.569*	.071	.116
18 Success	-.770*	-.026	.127	.191	.247	.135
19 Self-Satisfaction	.364	.015	.187	-.521*	.356	-.198
20 Intellectual Stimulation	.629*	-.120	-.010	-.068	.418*	.223
21 Creativity	.200	-.164	-.693*	-.089	.169	.333
22 Security	.130	.019	.695*	-.175	.213	.261
23 Prestige	-.611*	-.146	-.540*	.097	-.180	-.026
24 Economic Returns	-.694*	-.243	-.005	.299	.092	.028
25 Surroundings	.120	.854*	.162	.075	.101	-.010
26 Associates	.144	.824*	.068	.014	.004	.227
27 Variety	.718*	.096	-.213	.190	-.016	.081
28 Follow Father	-.073	-.211	-.003	-.024	.129	-.854*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR ITALY 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.92**	-.01	-.08	-.35	-.11	-.10
12	.02	.76	.60	-.01	-.24	-.04
13	.18	.29	-.46	.71	-.22	-.34
14	.16	.13	.18	.18	.91**	-.26
15	.22	.18	-.10	.28	.16	.90**
16	.22	-.54	.61	.50	-.19	.01

** Identical factors

Table 7

ITEM COMPARISON FOR ITALY 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

	VI		VII		VIII	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	14	15	15	16
14 Altruism	.55	(.26)*				
15 Esthetics			-.88	-.85		
16 Independence			(.01)	-.41		
17 Management						
18 Success	-.77	-.77				
19 Self-Satisfaction						
20 Intellectual Stim.	.61	.63	(.10)	.42	.43	(.22)
21 Creativity						
22 Security			.43	(.21)		
23 Prestige	-.50	-.61	-.43	(-.18)		
24 Economic Returns	-.74	-.69				
25 Surroundings						
26 Associates						
27 Variety	.45	.72			.47	(.08)
28 Follow Father					-.85	-.85

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 8

Stage III

VIEWS OF LIFE

ITALY - 14 Year Olds	Loadings Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
Item								
43 Locus of Control(Internal/ external	.327	-.032	.136	-.465*	-.159	-.112	.059	.086
44 Academic Locus of Control	.396*	-.021	.068	-.007	-.018	.069	.026	-.076
45 Action-Inaction	-.119	-.050	.139	-.010	.007	.084	.115	.038
46 Immediate-Delayed Action	.238	-.461*	.209	.085	.203	-.007	.101	.080
47 Rate of Action	-.021	-.070	.166	.033	.541*	.040	-.028	.075
48 Intrinsic-Extrinsic Work Motivation	.372	.203	.065	.049	.056	.043	-.157	.255
49 Task Achievement-Interpersonal Relations	-.009	.502*	.106	-.019	.042	-.017	.028	.128
50 Competition-Cooperation	-.214	-.198	.048	.471*	-.166	-.158	-.055	.141
51 Independent- Obedient	.384	-.106	-.064	-.076	.203	.162	.033	.045
52 Earned-Bestowed Status	.233	.133	-.077	-.018	.059	.522*	-.114	.009
53 Confront-Avoid	.071	.145	.236	-.184	-.028	.417*	.093	.158
54 Self - Other Initiation	-.005	.015	.477*	.146	.320	.158	-.072	-.201
55 Self - Other Solver	.024	.014	.093	.058	.056	-.041	.575*	-.031
56 Self - Joint Implementation	.168	.036	.096	.528*	.045	-.080	.145	-.022
58 Instrument - Fantasy	.069	-.012	.287	-.066	.052	.021	-.004	.026
59 Emotional Control/Expressivity	.066	.475*	.011	.017	-.077	.130	.020	.002
60 Activity/Passivity under Stress	.301	-.048	.060	-.020	.490*	-.056	.178	-.020
61 Positive/Negative Self-Esteem	.002	.072	.466*	.131	.010	-.128	.123	-.086
62 View of Life(Complex/Simple)	-.020	.186	-.115	-.001	.055	.084	-.016	.276**

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

** In this factor none of the variables loaded .40 or better, therefore, the variable with the highest loading was chosen to represent this factor.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

ITALY - 14 Year Olds	Loadings	
Sub-Scores	Factor 17	Factor 18
1 Active Coping	.747*	-.097
2 Passive Coping	.839*	.056
3 Active Defensive	-.241	.743*
4 Passive Defensive	.168	.827*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

Stage III

SOCIAL ATTITUDES INVENTORY

ITALY - 14 Year Olds	Factor Loading
Sub-Scores	Factor 25
37 Task Achievement	.413*
38 Authority	.597*
39 Aggression	.657*
40 Interpersonal Relations	.501*
41 Anxiety	.404*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

ITALY - 14 Year Olds

New Factor Designation	Factor Abbreviation	COMMON FACTORS Stage I Designation	Stage III Designation	NAME
I	C(SC)	1	4	Copes with Anxiety
II	C(SC)	2	6	Copes with Aggression
III	C(SC)	3	1	Copes with Interpersonal Relations
IV	C(SC)	4	3	Copes with Authority
V	C(SC)	5	2	Copes with Task Achievement
VI	OVAL	11	11	Values Intellectual Stimulation and Variety; does not value Success, Prestige, or Economic Returns; (values Altruism)*
VII	OVAL	14	15	Does not value Esthetics; (Values Intellectual Stimulation and Security; does not value Independence, or Prestige.)
VIII	OVAL	15	16	Does not value Following Father's Occupation; (Values Intellectual Stimulation and Variety)
		UNIQUE FACTORS		
	C(SC)	6	-	Copes effectively with Task Achievement with Neutral, not Negative Affect
	C(SC)	7	-	Copes effectively with Interpersonal Relations via Stance and Engagement without Positive Affect
	C(SC)	8	-	Positive Attitude toward Authority, Interpersonal Relations and Task Achievement
	C(SC)	9	-	Positive, not Neutral Affect toward Task Achievement
	C(SC)	10	-	Engages Authority with Positive Affect and Positive Affect toward Interpersonal Relations
	OVAL	12	-	Values Surroundings and Associates; does not value Creativity
	OVAL	13	-	Does not value Self-Satisfaction nor Security
	OVAL	16	-	Values Management
	C(SC)	-	5	Copes effectively with Aggression with Neutral not Hostile Affect
	C(SC)	-	7	Positive Attitude toward Interpersonal Relations, Engages or does not Seek Aid with Authority, does not Seek Aid for Anxiety.
	C(SC)	-	8	Neutral, not Positive Affect toward Task Achievement
	C(SC)	-	9	Positive Attitude toward Authority without Positive Affect toward Anxiety
	C(SC)	-	10	Positive Attitude with Hostile Affect toward Anxiety and lacking Positive and Depressive Affect toward Interpersonal Relations
	OVAL	-	12	Values Surroundings and Associates; does not value Management
	OVAL	-	13	Values Security; does not value Creativity nor Prestige
	OVAL	-	14	Values Management; does not value Altruism or Self-Satisfaction
	C(VOL)	-	17	Internal Academic Locus of Control
	C(VOL)	-	18	Prefers Delayed Action, Task Achievement and Control of Emotions.
	C(VOL)	-	19	Self-Initiator, Positive Self-Esteem.
	C(VOL)	-	20	External Locus of Control, Competitive, Self-Implementor.
	C(VOL)	-	21	Prefers fast Rate of Action, Active under Stress
	C(VOL)	-	22	Prefers Earned Status and to Confront Problems
	C(VOL)	-	23	Self-Solver
	C(VOL)	-	24	Views Life as complex
	C(SAI)	17	-	Copes effectively
	C(SAI)	18	-	Shows defensive behavior
	C(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

ITALY - 14 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with Neutral, not Negative Affect	$p < .001$
C(SC)2-II	F < M	Copes effectively with Aggression via Stance and Engagement with Positive, not Negative Affect.	$p < .005$
C(SC)3-III	F < M	Copes effectively with Interpersonal Relations with Neutral, not Negative Affect.	$p < .001$
[i]C(SC)4-IV	F < M	Copes effectively with Authority via Stance with Neutral, not Negative Affect.	$p < .001$
C(SC)7	F < M	Copes effectively with Interpersonal Relations via Stance and Engagement without Positive Affect.	$p < .001$
[i]OVAL 11-VI	F > M	Values Altruism, Intellectual Stimulation and Variety; doesn't value Success, Prestige, and Economic Returns.	$p < .001$
OVAL 12	F > M	Values Surroundings and Associates; doesn't value Creativity.	$p < .001$
[i]OVAL 15-VIII	F > M	Values Intellectual Stimulation and Variety; doesn't value Following Father's Occupation.	$p < .001$

---

* 8/18 (44%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III).

Table 13

SIGNIFICANT SEX DIFFERENCES*

ITALY - 14 Year Olds - Stage III

			Probability Level
C(SC)2-V	F < M**	Copes effectively with Task Achievement with Neutral, not Hostile Affect.	$p < .022$
[i]C(SC)3-IV	F < M	Copes effectively with Authority with Neutral, not Hostile or Depressive Affect.	$p < .001$
C(SC)9	F < M	Positive Attitude toward Authority, without Positive Affect toward Anxiety.	$p < .02$
C(SC)10	F < M	Positive Attutude and Hostile Affect toward Anxiety without Depressive or Positive Affect toward Interpersonal Relations	$p < .008$
[i]OVAL 11-VI	F > M	Values Intellectusl Stimulation and Variety; doesn't value Success, Prestige, or Economic Returns.	$p < .014$
OVAL 12	F > M	Values Surroundings and Associates; doesn't value Management.	$p < .001$
OVAL 13	F > M	Values Security; doesn't value Creativity and Prestige.	$p < .053$
[i]OVAL 16-VIII	F < M	Values Following Father's Occupation	$p < .002$
[n]C(VOL)17	F > M	Believes in Self-Control of academics	$p < .052$
[n]C(VOL)19	F < M	Favors Self-Initiation of Action and has Positive Self-Esteem.	$p < .021$
[n]C(VOL)20	F < M	Believes others control environment; prefers competition and prefers to do all work by oneself.	$p < .002$

---

* 11/25 (44%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 14

SIGNIFICANT SES DIFFERENCES*

ITALY - 14 Year Olds - Stage I

			Probability Level
C(SC)2-II	L < M**	Copes effectively with Aggression via Stance and Engagement with positive, not negative Affect.	$p < .036$
C(SC)9	L < M	Positive, not neutral Affect toward Task Achievement.	$p < .042$
OVAL 11-VI	L < M	Value Altruism, Intellectual Stimulation, and Variety; doesn't value Success, Prestige, and Economic Returns.	$p < .012$
OVAL 13	L > M	Values Self-Satisfaction and Security; doesn't value Independence	$p < .029$
[i]OVAL 15-VIII	L > M	Values Intellectual Stimulation and Variety; doesn't Follow Father.	$p < .003$
OVAL 16	L > M	Values Management.	$p < .013$
[n]C(SAI)18	L > M	Shows defensive behavior	$p < .002$

---

* 7/18 (38%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 15

DIGNIFICANT SES DIFFERENCES*

ITALY - 14 Year Olds - Stage III

			Probability Level
C(SC)10	L > M**	Positive Attitude and hostile Affect toward Anxiety, without depressive or positive Affect toward Interpersonal Relations.	$p < .046$
OVAL 13	L > M	Values Security; doesn't value Creativity or Prestige.	$p < .049$
[i]OVAL 16-VIII	L < M	Values Following Father's occupation.	$p < .001$
[n]C(VOL)21	L < M	Prefers to work quickly; stress exaggerates activity.	$p < .001$

---

* 4/25 (16%) of the significance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[i] = An identical SES difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 16a.

Stage I

REGRESSION ANALYSIS

ITALY - 14 Year Olds			CRITERION: Reading Achievement		
Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-[n]C(SAI)18	13.81	.001	.24	.06	.06
C(SC)7	4.59	.033	.27	.08	.02
- OVAL 16	4.84	.029	.31	.09	.02
OVAL 13	4.27	.040	.33	.11	.02
[i]ED ASP	32.65	.001	.47	.22	.11
[i]RAVEN	34.02	.001	.57	.33	.10
BRS	5.23	.023	.58	.34	.02

Additional Explanatory Variables:

	pr	p	r	p
[i]OCC ASP	.25	.001		

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ITALY - 14 Year Olds — CRITERION: Reading Achievement

-[n]C(SAI)18* = Doesn't show defensive behavior.

C(SC)7 = Copes effectively with Interpersonal Relations without positive Affect.

-OVAL 16 = Doesn't value Management.

OVAL 13 = Values Self-Satisfaction and Security.

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

ITALY - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(VOL)27	13.54	.001	.25	.06	.06
[n]C(VOL)17	5.80	.02	.30	.09	.03
-[n]C(VOL)23	3.99	.05	.33	.11	.02
- OVAL 12	4.65	.03	.36	.13	.02
[i]ED ASP	32.02	.001	.51	.26	.12
[i]OCC ASP	14.73	.001	.56	.31	.05
[i]RAVEN	22.21	.001	.62	.38	.07
BRS	.44	NS			

Additional Explanatory Variables:

	pr	p	r	p
OVAL 13			-.15	.05
OVAL 16-VIII			-.15	.05
[n]C(VOL)18			-.14	.05
[n]C(VOL)19			.16	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ITALY - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change

[n]C(VOL)21 = Fast rate of action and active under stress

[n]C(VOL)17 = Internal academic Locus of Control

-[n]C(VOL)23 * = Lets others solve problems

- OVAL 12 = Does not value Surroundings and Associates, values Management

[i]ED ASP = Educational Aspiration

[i]OCC ASP = Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

-OVAL 13 = Values Creativity and Prestige, not Security

-OVAL 16-VIII= Values Following Father's Occupation

-[n]C(VOL)18 = Interested in Immediate Rewards, Interpersonal Relations and Emotional Expressivity

[n]C(VOL)19 = Self imitator and positive Self-Esteem

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

ITALY - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9	3.92	.049	.13	.02	.02
OCC ASP	17.91	.001	.30	.09	.07
[1]RAVEN	34.60	.001	.46	.21	.12
BRS	13.95	.001	.50	.25	.05

Additional Explanatory Variables:

	pr	p	r	p
[1]ED ASP	.17	.011		
- OVAL 14-VII	-.13	.049		
- OVAL 16	-.13	.050		

---

[1] = An identical predictor or explanatory factor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ITALY - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:

C(SC)9 = Positive not neutral Affect toward Task Achievement

OCC ASP = Occupational Aspiration

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i] ED ASP = Educational Aspiration

-OVAL 14-VII* = Values Prestige and Esthetics; does not value Security

-OVAL 16 = Does not value Management

---

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

ITALY - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(VOL)21	6.44	.01	.18	.03	.03
-[n]C(VOL)20	6.55	.01	.25	.06	.03
[i]ED ASP	16.92	.001	.37	.14	.08
[i]RAVEN	8.99	.003	.43	.18	.04
BRS	1.67	NS			

Additional Explanatory Variables:

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[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ITALY - 14 Year Olds — CRITERION: Math Achievement

[n]C(VOL)21 = Prefers fast rate of action and active in stress situation

- [n]C(VOL)20* = Internal Locus of Control, Cooperative, and Joint Implementor

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

•

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

ITALY - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[1]OCC ASP	15.74	.001	.25	.06	.06
[1]ED ASP	3.83	.052	.28	.08	.02
[1]RAVEN	23.98	.001	.41	.17	.09
[1]BRS	82.94	.001	.63	.39	.22

Additional Explanatory Variables:

	pr	p	r	p
-OVAL 13	-.13	.050		
OVAL 14-VII	.13	.048		

---

[1] = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

ITALY - 14 Year Olds CRITERION: Grade Point Average

Predictor
Variables:

[i]OCC ASP = Occupational Aspiration

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

-OVAL 13*= Values Self-Satisfaction and Security

OVAL 14-VII = Values Security not Esthetics or Prestige

---

[i] = An identical predictor or explanatory factor across samples

Table 21a.

Stage III

REGRESSION ANALYSIS

ITALY - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}C(VOL)22	7.25	.008	.19	.04	.04
^{i}ED ASP	17.33	.001	.34	.11	.08
^{i}RAVEN	7.57	.006	.39	.15	.03
^{i}BRS	41.37	.001	.55	.30	.15

Additional Explanatory Variables:

	pr	p	r	p)
^{i}OCC ASP			.15	.05

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

ITALY - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

$^{n}_{\text{C(VOL)22}}$ = Prefers Earned Status and Confrontation in Coping with Problems

$^{i}_{\text{ED ASP}}$ = Educational Aspirations

$^{i}_{\text{RAVEN}}$ = Raven Progressive Matrices

$^{i}_{\text{BRS}}$ = Behavior Rating Scale

Additional Explanatory Variables:

$^{i}_{\text{OCC ASP}}$ = Occupational Aspirations

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

ITALY - 14 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	10.2%	12.1%	8.8%
Coping/Motivation (unique)	15.2%	5.9%	5.3%
Total	32.6%	20.9%	16.8%
ITALY - 14 Year Olds - Stage III			
Aptitude (unique)	7.3%	3.9%	3.3%
Coping/Motivation (unique)	22.2%	8.7%	7.0%
Total	38.2%	17.8%	14.8%

Table 23

CORRELATIONS AMONG THE CRITERIA

ITALY - 14 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Reading			
Math	.40		.33
GPA	.37		
ITALY - 14 Year Olds - Stage III			
Reading			
Math	.3[illegible]		.26
GPA	.39		

YUGOSLAVIAN 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Yugoslavian 10 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, Views of Life, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Yugoslavian students. Sex and socioeconomic status differences are described next. Finally, the regression analyses are delineated in order to show the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were three general factors, corresponding to coping with authority, anxiety, and task achievement. All included neutral, not negative affect, in the respective behavioral area. Coping with aggression and with interpersonal relations was depicted by two factors in each area. Factors 4 and 7 represented coping effectively via stance and engagement for aggression and interpersonal relations, respectively. Factor 6 represented coping effectively with aggression, with positive, not neutral affect. Factor 5 represented coping effectively with interpersonal relations with neutral, not negative affect. Unit weights were constructed using those variables having a factor loading ($\geq .40$). For example, factor 1 consisted of all five variables dealing with coping with anxiety. The remaining factors, 8-10, tended to have more idiosyncratic variable loadings. The Stage III factor analysis (Table 2) yielded five major factors corresponding to each of the respective behavioral areas, and five secondary factors tending to have variable loadings grouped according to sub-aspects of the behavioral areas.

As these factors appeared to be yielding similar results, a comparison of the five major factors was examined (see Table 3). These factors were highly similar, with respective percentages of common variables across stages of 80%, 100%, 67%, 60%, and 100%. Some of the variables which did not load higher than .40 on both stages still showed similar direction. While the program RELATE could not be run due to different numbers of variables in the two stages, these factors were considered "identical," and appeared to indicate a stable "Yugoslavian" construct system at age 10 that defined coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that two of the six factors were "identical," having a cosine of .9 or better (interpreted like a correlation coefficient), three more were "similar," with cosines of .8 to .9. Table 7 depicts the item comparison of these four factors across the two stages. The results of this comparison indicated much similarity in constructs across time for Yugoslavian 10 year old students.

Views of Life

The Views of Life instrument was used only in Stage III. The factor analysis of these variables yielded eight factors and is depicted in Table 8.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: Positive coping, and ineffective or defensive responding.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reported effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments, which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content, as described earlier. The five primary factors were very similar and were referred to as "identical" factors. These factors received a Roman numeral designation, as indicated in Table 11.

The Occupational Values instrument was compared by the RELATE factor comparison method. Two of these factors were called "identical" (RELATE value $\geq$ .90) and received a Roman numeral designation. Three more were "similar" (RELATE value of .80 to .90) and received an alphabetic designation. For example, similar factor "A" consisted of original factors OVAL 11 in both samples. The unique factors in both samples were listed below these, having no comparable factor in the other sample.

In the Yugoslavian 10 year old sample, the five major Sentence Completion factors were identical across stages. There were two identical and three similar factors in the Occupational Values Comparison. These results indicated that the factor structures in two samples were highly similar in many respects, giving evidence that the coping and motivation patterns represented by these factors may remain quite stable in the Yugoslavian 10 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males tended to cope more effectively with anxiety, and reported better overall coping on the SAI. Females, however, coped more effectively with aggression. In a work setting, males placed greater value on self-satisfaction and following father's occupation, whereas females more highly valued esthetics, surroundings, and variety.

Sex differences for Stage III are listed in Table 13. Females coped more effectively with aggression and expressed more neutral, not hostile affect toward both aggression and interpersonal relations. They also expressed more positive attitudes toward task achievement, more depressive and neutral affect toward authority, and less hostile affect toward anxiety than did males. In work, females placed greater value on altruism, self-satisfaction, surroundings, and associates, while males more highly valued management, prestige, and economic returns. In addition, females expressed greater satisfaction gained from actual accomplishments (as opposed to possible rewards) than did males. Finally, females reported better overall coping on the SAI.

One factor showed a consistent sex difference across stages. Identical factor C(SC)3-IV showed that Yugoslavian 10 year old females coped more effectively with aggression in both samples. Although the SAI was a different instrument in each stage, it is interesting that, in these self-report measures of coping effectiveness, males reported better coping in Stage I while females reported themselves as better copers in Stage III.

SES DIFFERENCES

Stage I social class differences are listed in Table 14. Middle-class students coped more effectively with aggression than the lower class. In the occupational arena, middle-class students placed greater value on altruism, self-satisfaction, associates, intellectual stimulation, creativity, and following father's occupation. Lower-class students, on the other hand, more highly valued independence, management, economic returns, security, and variety.

In Stage III (Table 15), there was only one social class difference, very possibly due to chance. Lower-class students placed greater value on following father's occupation, while the middle class valued esthetics more highly.

In general, there were few social class differences among Yugoslavian 10 year old students, especially in Stage III. In Stage I, there was a tendency for middle class to more highly value work which was satisfying, with friendly associates and intellectual challenge, while the lower class was somewhat more concerned with power and financial security.

SUMMARY OF REGRESSION ANALYSES

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. Good readers tended to cope more effectively with anxiety and task achievement, and reported less defensive behavior on the SAI than poorer readers. They were also rated higher by their peers on the Behavior Rating Scale. In a work setting, these students placed greater value on altruism, self-satisfaction, associates, creativity, and intellectual stimulation. They placed less value than poorer readers on independence, management, economic returns, security, and success. In addition, better readers had higher aptitude scores and higher aspirations for both career and education.

In Stage III (Tables 17a and 17b), good readers coped more effectively than poorer readers with anxiety and with authority. They themselves reported better overall coping on the SAI and their peers rated them more highly on the Behavior Rating Scale. Also, better readers expressed a greater preference for task achievement as opposed to interpersonal relations, and for interdependent rather than independent action. In a work setting, good readers placed greater value on independence, intellectual stimulation, creativity, success, and prestige. In contrast they valued security, management, and following father's occupation less than poorer readers. In addition, better readers had higher aptitude scores and higher aspirations for both career and education.

Across the two stages, better readers consistently coped more effectively with anxiety. They were also more highly rated by their peers on the Behavior Rating Scale. They saw themselves as better copers, too, although the self-report measure (SAI) was a different instrument in the two stages. Further, two Occupational Values factors predicted in both samples, OVAL VI and OVAL B: better readers placed greater value on intellectual stimulation and creativity, and less value on security. Finally, aptitude and both educational and occupational aspirations were predictive of reading achievement in both stages.

In sum, those Yugoslavian 10 year olds who were good readers had relatively high aptitude scores and aspirations for both career and schooling. Better readers coped effectively with anxiety. In addition, they saw themselves as good copers and their peers rated them highly. Finally, these students valued challenging and creative work more than job security.

Math Achievement

Predictors of math achievement in Stage I are listed in Tables 18a and 18b. Students who were good in math coped well with authority and expressed positive attitudes and positive affect toward authority. Also, they expressed positive, not neutral affect toward task achievement. In a work setting, better math students placed greater value on creativity, intellectual stimulation, altruism, self-satisfaction, and associates. They did not value security, success, independence, management, and economic returns as much as poorer students did. Good math students also had higher aptitude scores and higher educational and occupational aspirations. Finally, these students were highly rated by their peers on the Behavior Rating Scale.

In Stage III (Tables 19a and 19b), better math students coped more effectively with authority and with task achievement and expressed more positive attitude toward interpersonal relations. They themselves reported better coping in the SAI and were highly rated by their peers on the BRS. In addition, good math students preferred task achievement over interpersonal relations and interdependent as opposed to independent action. They expressed a more internal locus of control, a greater preference for earned rather than bestowed status, a more complex view of the world, and more extrinsic motivation than poorer students. In work, better students placed greater value on intellectual stimulation, creativity, and independence, and valued management and security less. Finally, these students had higher aptitude scores and higher aspirations for schooling. This sample was one of very few where occupational aspirations were not predictive of achievement.

A comparison of the two stages showed that coping with authority was important for math achievement in Yugoslavian 10 year olds. In work, better math students consistently placed greater value on intellectual stimulation and creativity, and less value on job security than poor students. Aptitude and educational aspirations were also predictive in both stages. Finally, good math students received high ratings by their peers on the Behavior Rating Scale.

Grade Point Average

Predictors of GPA for Stage I are listed in Tables 20a and 20b. Successful students expressed positive affect toward interpersonal relations, and tended not to confront authority. They reported less defensive behavior on the SAI than did students with lower grades. Peer ratings were a very powerful predictor of GPA in this sample. In work, students with higher grades more highly valued altruism, self-satisfaction, associates, intellectual stimulation, and creativity. They placed less value on independence, management, economic returns, and security. In addition, these students had higher aptitude scores and higher educational and occupational aspirations.

There were numerous predictors of GPA in Stage III (Tables 21a and 21b). Successful students coped more effectively with authority, interpersonal relations, and task achievement. Not surprisingly, they rated themselves as good overall copers (SAI) and were rated highly by their peers on the BRS. There were several Views of Life factors which significantly predicted GPA. These included internal locus of control, preference for earned rather than bestowed status, view of world as complex, extrinsic motivation, preference for task achievement over interpersonal relations, preference for interdependent as opposed to independent action, preference for solving problems by oneself, and preference for instrumental action as opposed to ideation or dreaming. In a work setting, successful students tended to value success, altruism, self-satisfaction, surroundings, and associates, but not management or economic returns. Finally, these students had higher aptitude and higher educational and occupational aspirations.

A comparison across stages indicated that students who received good grades consistently had relatively high aptitude scores and high educational and occupational aspirations. They were rated highly by their peers on the Behavior Rating Scale. In work, they tended to place greater value than less successful students on altruism, self-satisfaction and surroundings, and less value on management and economic returns.

PERCENTAGE OF VARIANCE

It is also important to consider the percent of variance accounted for by aptitude and coping/motivation variables, respectively, in accounting for success on the criterion measures. These are listed in Table 22. Aptitude uniquely predicted an average of 6.8% of the variance in reading, 9.1% in math, and 4.6% in GPA.

The coping/motivation factors contributed more substantially to criterion prediction than did aptitude. These factors uniquely accounted for an average of 16.7% of the variance in reading, 10.4% in math, and 20.7% in GPA. The coping/motivation factors were strong predictors across all criteria and stages, indicating that success in school for Yugoslavian 10 year olds were contingent upon many kinds of coping skill and attitudes. Either alone, or in combination with aptitude, they accounted for 26% to 35% of the (total) variance in achievement.

Table 1

STAGE I

SENTENCE COMPLETION

YUGOSLAVIA - 10 Year Olds		Loadings									
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Attitude - Authority	.057	.188	.004	-.040	-.078	.095	-.058	.400*	.503*	.157
40	Att. - Interpersonal Relations	-.056	.044	.099	.056	-.119	-.057	-.170	-.072	.510*	.163
41	Att. - Task Achievement	-.075	-.017	.095	-.084	.031	.060	.094	-.069	.578*	-.138
43	Aggression - Stance	.029	.055	.003	.954*	.019	.191	.010	.011	-.019	-.004
44	Aggression - Engagement	-.006	.071	-.001	.947*	.031	.051	.014	.020	-.034	-.006
45	Aggression - Coping Eff.	.091	.048	.084	.795*	.035	.582*	.013	.009	.003	.005
46	Aggression - Neg. Affect	-.143	-.017	-.167	-.229	-.043	-.911*	-.012	-.002	-.034	-.018
47	Aggression - Pos. Affect	.143	.017	.167	.229	.043	.911*	.012	.002	.034	.018
48	Authority - Stance	-.041	.013	.405*	.035	-.122	-.114	-.075	-.109	-.339	.456*
49	Authority - Engagement	.047	.038	.438*	-.140	.050	.131	-.149	.229	-.328	.204
50	Authority - Coping Eff.	.067	.066	.873*	.011	-.004	.103	.036	.168	-.000	.105
51	Authority - Neg. Affect	-.116	-.056	-.925*	-.019	-.076	-.137	.024	-.056	-.152	.078
52	Authority - Neutral Aff.	.151	.077	.883*	.074	.064	.060	-.033	-.180	.214	-.139
53	Authority - Pos. Affect	-.104	-.063	.063	-.154	.030	.210	.025	.665*	-.182	.176
54	Anxiety - Stance	.910*	.043	.118	.083	-.025	.013	-.009	-.051	-.024	.028
55	Anxiety - Engagement	.771*	.053	.073	.006	-.025	.046	.043	-.093	.052	-.035
56	Anxiety - Coping Eff.	.924*	.045	.053	.057	.013	-.016	-.032	.014	-.053	.047
57	Anxiety - Neg. Affect	-.906*	-.116	-.017	.041	-.091	-.104	.023	-.065	.050	-.030
58	Anxiety - Neutral Aff.	.906*	.116	.017	-.041	.091	.104	-.023	.065	-.050	.030

STAGE I

SENTENCE COMPLETION

						Loadings					
YUGOSLAVIA - 10 Year Olds (continued)		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
59	Interpersonal Relations - Stance	-.053	.025	-.059	-.013	-.062	.000	.954*	-.039	-.053	-.025
60	IPR - Engagement	.006	.030	-.022	.044	.027	.019	.942*	-.010	.011	.108
61	IPR - Coping Eff.	.088	.101	.040	.027	.848*	.078	.400*	-.015	-.037	.008
62	IPR - Negative Affect	-.028	-.085	-.047	-.025	-.962*	-.009	.150	.031	.050	.071
63	IPR - Neutral Affect	.046	.077	.038	.024	.970*	.021	-.132	-.019	-.036	.075
64	IPR - Positive Affect	-.086	.040	.039	.009	-.033	-.058	-.087	-.060	-.065	-.715*
65	Task Achievement - Stance	.105	.908*	.048	.069	.056	.031	.017	.056	-.041	-.139
66	Task Ach. - Engagement	.040	.738*	.007	.008	.066	.151	.021	-.101	-.210	-.216
67	Task Ach. - Coping Eff.	.170	.900*	.087	.121	.039	-.080	-.006	.149	.082	-.018
68	Task Ach. - Neg. Affect	-.100	-.725*	-.075	-.029	-.052	.107	-.014	-.033	-.256	-.270
69	Task Ach. - Neutral Aff.	.043	.640*	.014	-.135	.099	.079	.054	-.450*	.172	.365
70	Task Ach. - Pos. Affect	.076	.065	.084	.242	-.075	-.269	-.060	.716*	.102	-.164

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

YUGOSLAVIA - 10 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	-.033	.063	-.144	.028	.061	-.050	.565*	.182	-.147	.088
65 T.A. - Stance	.038	.890*	.017	.143	.075	.101	.058	.028	.049	-.067
66 T.A. - Engagement	.050	.894*	.040	.083	.053	.014	.084	-.021	.066	.065
67 T.A. - Aid/Advice	.053	.877*	.060	.028	.009	.039	.086	.057	.050	.038
68 T.A. - Coping Effect	.071	.584*	.113	.140	.011	.126	.003	.117	.434*	.022
69 T.A. - Hostile Affect	-.194	-.451*	.128	-.119	-.008	-.320	.197	.300	-.018	.389
70 T.A. - Depressive Aff.	-.051	-.537*	-.055	-.022	.057	-.002	.027	-.088	.209	.349
71 T.A. - Neutral Aff.	.170	.758*	-.042	.087	-.030	.143	-.177	-.033	-.365	-.140
72 T.A. - Positive Aff.	-.017	-.230	-.013	.011	-.005	.139	.063	-.217	.498*	.241
73 Interpersonal Relations Attitude	.034	.199	.125	.174	.041	.007	.318	.021	.434*	.097
74 I.R. - Stance	.078	-.035	.044	.119	.873*	-.100	-.053	.108	.081	.050
75 I.R. - Engagement	.054	.043	.120	.133	.948*	.025	.029	-.019	.041	-.054
76 I.R. - Aid/Advice	.054	.043	.120	.133	.948*	.025	.029	-.019	.041	-.054
77 I.R. - Coping Effect	.116	.032	.030	.107	.877*	.322	-.040	.035	-.046	.048
78 I.R. - Hostile Affect	-.112	-.144	-.119	.011	-.088	-.817*	-.112	.082	-.050	-.074
79 I.R. - Depressive Aff.	-.213	-.084	.335	-.011	-.093	-.220	.337	-.259	.308	-.116
80 I.R. - Neutral Aff.	.218	.181	-.102	.001	.118	.836*	-.104	.082	-.197	.161
81 I.R. - Positive Aff.	.085	-.062	-.038	-.039	.142	-.022	-.096	.079	.481*	-.259

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

YUGOSLAVIA - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	-.073	.087	.152	.409*	.114	.036	.392	.102	.160	.044
83 Auth. - Stance	.095	.134	.000	.787*	.133	.063	-.221	.056	.055	.055
84 Auth. - Engagement	.064	.074	.075	.900*	.119	-.030	.132	.012	-.086	-.054
85 Auth. - Aid/Advice	.055	.093	.052	.911*	.085	.016	.065	-.069	-.121	-.028
86 Auth. - Coping Eff.	.089	.152	-.055	.819*	.116	.019	-.164	.415*	.087	.007
87 Auth. - Hostile Aff.	.042	-.117	.067	-.209	-.088	-.073	-.261	-.792*	.032	.034
88 Auth. - Depress. Aff.	-.132	-.078	.102	-.350	-.038	.075	.747*	-.030	-.085	-.038
89 Auth. - Neutral Aff.	.082	.152	-.136	.451*	.096	-.011	-.450*	.600*	.050	.008
90 Auth. - Positive Aff.	-.000	.000	-.000	-.000	-.000	-.000	-.000	.000	.000	.000
91 Anxiety - Attitude	-.147	.227	-.115	-.087	.123	.094	-.089	.093	.241	.438*
92 Anx. - Stance	.819*	.055	.009	-.060	.077	.051	-.154	.037	-.039	.073
93 Anx. - Engagement	.880*	.066	.014	.091	.021	-.069	.059	-.081	.001	-.130
94 Anx. - Aid/Advice	.882*	.074	-.038	.089	.008	-.076	.075	-.074	.019	-.128
95 Anx. - Coping Eff.	.891*	.059	-.059	.062	.107	.173	.065	-.038	.038	.010
96 Anx. - Hostile Aff.	-.274	-.031	.213	-.205	-.100	-.254	-.510*	.105	-.055	.236
97 Anx. - Depressive Aff.	-.797*	-.016	-.084	.039	-.017	-.061	.248	-.108	-.026	-.178
98 Anx. - Neutral Aff.	.850*	.071	-.026	.088	.051	.161	.049	.067	.018	.020
99 Anx. - Positive Aff.	.020	-.208	-.086	-.055	.075	.167	.066	-.155	.185	.045

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

YUGOSLAVIA - 10 Year Olds

	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
100 Aggression - Stance	-.026	-.061	.736*	.010	.139	-.138	-.108	-.290	-.062	.243
101 Agg. - Engagement	-.033	.033	.943*	.029	.076	-.001	.020	-.005	-.047	.002
102 Agg. - Aid/Advice	-.003	.097	.934*	-.008	.067	.011	.020	.027	-.040	-.016
103 Agg. - Coping Effect	.057	.117	.874*	.083	.084	.274	-.045	.062	.079	-.149
104 Agg. - Hostile Aff.	.047	-.118	-.404*	-.096	-.010	-.489*	-.084	-.338	-.173	.508*
105 Agg. - Depressive Aff.	-.302	.003	-.097	-.181	.112	-.254	-.079	.150	-.202	-.521*
106 Agg. - Neutral Aff.	.077	.114	.435*	.168	-.036	.583*	.114	.270	.251	-.286
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR YUGOSLAVIA 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

YUGOSLAVIA	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	2	3	4	4	3	7	5
64 Task Achievement-Attitude										
65 TA - Stance			.91	.89						
66 TA - Engagement			.74	.89						
*67 TA - Aid/Advice				.88						
68 TA - Coping Eff.			.90	.58						
**69 TA - Hostile Aff.			-.73	-.45						
**70 TA - Depress. Aff.				-.54						
71 TA - Neutral Aff.			.64	.76						
72 TA - Positive Aff.										
73 Interpersonal Relations - Attitude										
74 IPR - Stance									.95	.87
75 IPR - Engagement									.94	.95
*76 IPR - Aid/Advice										.95
77 IPR - Coping Eff.										.88
**78 IPR - Hostile Aff.										
**79 IPR - Depress. Aff.										
80 IPR - Neutral Aff.										
81 IPR - Positive Aff.										

YUGOSLAVIA	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	2	3	4	4	3	5	5
82 Authority - Attitude					(.01)	.41				
83 Auth. - Stance					.41	.79				
84 Auth. - Engagement					.44	.90				
*85 Auth. - Aid/Advice						.91				
86 Auth. - Coping Eff.					.87	.82				
**87 Auth. - Hostile Aff.					-.93	(-.21)				
**88 Auth. - Depress. Aff.						(-.35)				
89 Auth. - Neutral Aff.					.88	.45				
90 Auth. - Positive Aff.										
*91 Anxiety - Attitude										
92 Anx. - Stance	.92	.82								
93 Anx. - Engagement	.77	.88								
*94 Anx. - Aid/Advice		.88								
95 Anx. - Coping Eff.	.92	.89								
**96 Anx. - Hostile Aff.	-.91	(-.27)								
**97 Anx. - Depressive Aff.		-.80								
98 Anx. - Neutral Aff.	.91	.85								
*99 Anx. - Positive Aff.										

YUGOSLAVIA	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	2	3	4	4	3	5	5
100 Aggression - Stance							.95	.74		
101 Agg. - Engagement							.95	.94		
*102 Agg. - Aid/Advice								.93		
103 Agg. - Coping Eff.							.80	.87		
**104 Agg. - Hostile Aff.							(-.23)	.40		
**105 Agg. - Depress. Aff.										
*106 Agg. - Neutral Aff.							(.23)	.44		
107 Agg. - Positive Aff.										

---

* - This variable was only present in the Stage III instrument.

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable -- "Negative Affect."

Table 4

STAGE I

OCCUPATIONAL VALUES

YUGOSLAVIA - 10 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	.669*	-.016	-.013	-.277	.250	.104
15	Esthetics	-.101	.010	-.098	.145	-.771*	.099
16	Independent	-.583*	.078	.375	-.095	-.002	.162
17	Management	-.734*	.273	-.087	-.079	.183	.030
18	Success	.215	.054	-.062	.814*	-.041	.139
19	Self-Satisfaction	.503*	.079	.154	.085	.514*	-.027
20	Intellectual Stimulation	.145	-.701*	.151	.072	.178	.082
21	Creativity	.239	-.717*	-.141	.053	-.078	.081
22	Security	-.007	.530*	.188	.402*	.109	.079
23	Prestige	-.089	-.028	-.813*	-.013	-.183	.053
24	Economic Returns	-.651*	.183	-.318	-.209	-.037	-.017
25	Surroundings	.191	.232	.549*	-.147	-.468*	-.077
26	Associates	.450*	.349	.011	-.587*	.189	.112
27	Variety	-.087	-.256	.368	.099	.161	.496*
28	Follow Father	-.016	.016	.155	-.064	.184	-.907*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

YUGOSLAVIA - 10 Year Olds Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	.572*	.185	-.039	.045	.003	.189
15 Esthetics	-.338	.140	-.211	.352	-.676*	-.236
16 Independence	.049	-.377	-.335	.472*	-.135	.411*
17 Management	-.507*	-.445*	-.260	.189	.286	.013
18 Success	-.052	.034	.901*	.041	.101	.023
19 Self-Satisfaction	.576*	-.168	.066	.018	.078	-.196
20 Intellectual Stimulation	.056	.789*	-.148	-.019	.154	-.078
21 Creativity	-.017	.734*	.126	.100	.014	.322
22 Security	.121	-.148	-.116	.072	-.012	-.851*
23 Prestige	-.407*	-.019	.571*	.060	-.361	.297
24 Economic Returns	-.715*	-.277	-.055	-.110	.148	.146
25 Surroundings	.525*	-.374	-.142	.008	.023	-.018
26 Associates	.643*	-.068	-.177	-.097	.184	.036
27 Variety	-.003	.324	-.063	.217	.693*	-.129
28 Follow Father	.000	-.069	-.112	-.916*	-.060	.073

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR YUGOSLAVIA 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.85*	.28	.36	-.10	-.23	-.04
12	.21	-.93**	.15	.07	-.11	-.25
13	.33	.08	-.74	.10	.20	-.53
14	-.30	.22	.47	.02	.02	-.80*
15	.14	-.08	.21	-.35	.90*	.06
16	.10	.05	.18	.92**	.30	.12

---

* Similar factors

** Identical factors

Table 7

ITEM COMPARISON FOR YUGOSLAVIA 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES
(Factor Loadings)

YUGOSLAVIA	A		VI		B		C		VII			
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	12	12	14	16[a]	15	15	16	14		
14 Altruism	.67	.57										
15 Esthetics							-.77	-.68				
16 Independence	-.58	(.05)*			(-.10)	-.41			(.16)	.47		
17 Management	-.73	-.51	(.27)	.45**								
18 Success					.81	(-.02)						
19 Self-Satis.	.50	.58					.51	(.08)				
20 Intell. Stimulation			-.70	-.79								
21 Creativity			-.72	-.73								
22 Security			.53	(.15)	.40	.85						
23 Prestige	(-.09)	-.41										
24 Economic Ret.	-.65	-.72										
25 Surroundings	(.19)	.53					-.47	(.02)				
26 Associates	.45	.64			-.59	(- .04)						
27 Variety							(.16)	.69	.50	(.22)		
28 Follow Father									-.91	-.92		

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

[a] The signs in this factor have been reversed as the factors are mirror images. See text for furthe details.

Table 8

STAGE III

VIEWS OF LIFE

	Loadings							
YUGOSLAVIA - 10 Year Olds	Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
Item								
43 Locus of Control(Internal/external)	-.075	.148	.088	.097	-.063	.124	.557*	.017
44 Academic Locus of Control	.401*	-.004	.064	.391	.163	-.094	.152	-.110
45 Action-Inaction	.220	.206	.266	-.011	.066	.157	.200	.311
46 Immediate-Delayed Action	-.098	-.055	.237	-.024	-.149	.001	-.015	-.163
47 Rate of Action	.049	.640*	-.007	.088	-.078	.038	.071	.058
48 Intrinsic-Extrinsic Work Motiv.	-.449*	-.038	.003	-.077	-.016	.007	.178	-.005
49 Task Achievement-Interpersonal Relations	.095	-.032	.617*	-.147	.026	.050	-.032	.136
50 Competition-Cooperation	-.043	.000	.049	-.008	-.068	-.040	-.026	.379*
51 Independent-Interdependent	-.097	-.042	-.416*	-.346	-.032	.022	-.242	-.033
52 Earned-Bestowed Status	.472*	.102	-.071	-.025	.078	.095	.150	.142
53 Confront-Avoid	.197	.104	.005	-.117	.495*	.333	-.009	.089
54 Self-Other Initiation	.031	.090	-.002	-.049	-.432*	.068	.065	.078
55 Self-Other Solver	.095	.027	.095	.034	-.031	.549*	.094	-.093
56 Self-Joint Implementation	-.027	.018	.061	.173	.146	.272	-.276	.181
58 Instrument - Fantasy	-.005	.043	-.031	.477*	-.023	.054	-.007	-.008
59 Emotional Control/Expressivity and Acceptance	.105	.173	-.010	.132	-.137	.144	.087	.099
60 Activity/Passivity under Stress	-.044	.352	.104	-.293	.269	-.020	.101	-.143
61 Positive/Negative Self-Control	-.149	.131	.295	.162	.075	.156	.047	.037
62 View of Life(Complex/Simple)	.493*	-.121	.088	-.070	-.146	.102	-.064	-.234

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

YUGOSLAVIA - 10 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	.813*	.095
2 Passive Coping	.837*	.091
3 Active Defensive	-.028	.899*
4 Passive Defensive	.312	.796*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

YUGOSLAVIA - 10 Year Olds	Factor Loading
Sub-Scores	Factor 25
37 Task Achievement	.595*
38 Authority	.692*
39 Aggression	.533*
40 Interpersonal Relations	.701*
41 Anxiety	.351

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

YUGOSLAVIA - 10 Year Olds

COMMON FACTORS

New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1*	1*	Copes with Anxiety
II	C(SC)	2	2	Copes with Task Achievement
III	C(SC)	3	4	Copes with Authority
IV	C(SC)	4	3	Copes with Aggression
V	C(SC)	7	5	Copes with Interpersonal Relations
A	OVAL	11	11	Values Altruism, Self-satisfaction, and Associates; does not value Management nor Economic Returns (Values Surroundings; does not value Independence nor Prestige).
VI	OVAL	12	12	Does not value Creativity nor Intellectual Stimulation (values Management and Security).
B	OVAL	14	16	Values Security (Values Success; does not value Independence nor Associates.
C	OVAL	15	15	Does not value Esthetics (Values Self-satisfaction, and Variety; doesn't value Surroundings).
VII	OVAL	16	14	Does not value Following Father's occupation (Values Variety and Independence).

UNIQUE FACTORS

Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
C(SC)	6	-	Copes effectively with Aggression with positive, not negative Affect.
C(SC)	5	-	Copes effectively with Interpersonal Relations with Neutral not Negative Affect.
C(SC)	8	-	Positive attitude toward Authority with positive Affect toward Authority and Task Achievement, without neutral Affect toward Task Achievement.
C(SC)	9	-	Positive attitude toward Authority, Interpersonal Relations and Task Achievement.
C(SC)	10	-	Copes via Stance with Authority without positive Affect toward Interpersonal Relations
OVAL	13	-	Values Surroundings; does not value Prestige.
C(SC)	-	6	Neutral, not hostile Affect toward Aggression and Interpersonal Relations.
C(SC)	-	7	Positive attitude toward Task Achievement and depressivenot neutral Affect toward Authority without hostile Affect toward Anxiety.
C(SC)	-	8	Copes effectively with Authority with neutral, not hostile Affect.
C(SC)	-	9	Copes effectively with Task Achievement with positive Affect; positive attitude toward Interpersonal Relations with positive Affect.
C(SC)	-	10	Positive attitude toward Anxiety with hostile not depressive Affect toward Aggresstion.
OVAL	-	13	Values Succesr and Prestige.

---

* These numbers appear in the Factor Analysis Tables 1, 2, 4, 5.

** The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

YUGOSLAVIA - 10 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with neutral, not negative Affect.	p < .037
[i]C(SC)4-IV	F > M	Copes effectively with Aggression via Stance and Engagement	p < .001
OVAL 15-C	F < M	Values Self-satisfaction; doesn't value Esthetics and Surroundings	p < .001
OVAL 16-VII	F > M	Values Variety and doesn't Follow Father	p < .002
[n]C(SAI)17	F < M	Self-report of good coping	p < .008

---

* 5/18 (27%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample.

Table 13

SIGNIFICANT SEX DIFFERENCES*

YUGOSLAVIA - 10 Year Olds -- Stage III

			Probability Level
[i]C(SC)3-IV	F > M**	Copes effectively with Aggression	$p < .004$
C(SC)6	F > M	Neutral, not hostile Affect toward Interpersonal Relations, with neutral, not hostile Affect toward Aggression.	$p < .006$
C(SC)7	F > M	Positive attitude toward Task Achievement with depressive not neutral Affect toward Authority, but without hostile Affect toward Anxiety.	$p < .019$
OVAL 11-A	F > M	Values Altruism, Self-satisfaction, Surroundings, and Associates; doesn't value Management, Prestige, or Economic Returns.	$p < .018$
[n]C(VOL)20	F > M	Gains satisfaction from actual accomplishments, rather than ideation or fantasy.	$p < .003$
[n]C(SAI)25	F > M	Copes effectively	$p < .018$

---

* 6/25 (24%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample.

Table 14

SIGNIFICANT SES DIFFERENCES*

YUGOSLAVIA - 10 Year Olds - Stage I

			Probability Level
C(SC)6	L < M**	Copes effectively with Aggression with positive, not negative Affect	p < .005
OVAL 11-A	L < M	Values Altruism, Self-satisfaction, and Associates; doesn't value Independence, Management, and Economic Returns.	p < .001
OVAL 12-VI	L > M	Values Security; doesn't value Intellectual Stimulation and Creativity	p < .024
OVAL 16-VII	L > M	Values Variety and doesn't Follow Father.	p < .011

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M - Middle Class

Table 15

SIGNIFICANT SES DIFFERENCES*

YUGOSLAVIA - 10 Year Olds - Stage III			Probability Level
OVAL 15-C	L < M**	Values Variety; doesn't value Esthetics	$p < .012$

---

* 1/25 (4%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M - Middle Class

Table 16a.

Stage I

REGRESSION ANALYSIS

YUGOSLAVIA - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[i]C(SC)1-I	10.49	.001	.19	.04	.04
- [n]C(SAI)18	4.88	.028	.23	.05	.02
OVAL 11-A	9.23	.003	.29	.08	.03
- [i]OVAL 12-VI	5.63	.018	.32	.10	.02
[i]OCC ASP	21.68	.001	.41	.17	.07
[i]ED ASP	9.60	.002	.44	.20	.03
[i]RAVEN	17.41	.001	.49	.24	.05
[i]BRS	8.48	.004	.52	.27	.02

Additional Explanatory Variables:

	pr	p	r	p
C(SC)2-II			.12	
- [s]OVAL 14-B	-.12	.05		

---

[i] = An identical predictor or explanatory factor across samples.

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 10 Year Olds CRITERION: Reading Achievement

[i]C(SC)1-I = Copes with Anxiety

-[n]C(SAI)18* = Does not show defensive behavior

OVAL 11-A = Values Altruism, Self-Satisfaction and Associates; does not value Independence, Management, nor Economic Returns

-[i]OVAL 12-VI = Does not Value Security; values Creativity and Intellectual Stimulation

[i]OCC ASP = Occupational Aspiration

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)2-II = Copes with Task Achievement

-[s]OVAL 14-B = Does not value Success and Security; values Associates

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when,in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

YUGOSLAVIA - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}C(SAI)25	10.66	.001	.26	.07	.07
^{i}C(SC)1-I	8.33	.004	.34	.11	.05
^{n}C(VOL)19	3.71	.056	.37	.14	.02
^{s}OVAL 16-B	9.12	.003	.43	.19	.05
^{i}ED ASP	14.08	.001	.51	.26	.07
^{i}RAVEN	20.36	.001	.59	.35	.09
^{i}BRS	27.41	.001	.67	.45	.10

Additional Explanatory Variables:

	pr	p	r	p
C(SC)4-III			.17	.05
^{i}OVAL 12-VI			.22	.05
OVAL 13			.16	.05
OVAL 14-VII			.18	.05
^{i}OCC ASP	.16	.05		

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

^{s} = A similar predictor across samples

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

[n]C(SAI)25 = Copes effectively

[i]C(SC)1-I = Copes with Anxiety

[n]C(VOL)19 = Prefers Task Achievement and Obedience

[s]OVAL 16-B = Values Independence not Security

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)4-III = Copes with Authority

[i]OVAL 12-VI = Values Intellectual Stimulation and Creativity not Management

OVAL 13 = Values Success and Prestige

OVAL 14-VII = Values Independence; does not value Following Father's Occupation

[i]OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

Table 18a.

Stage I

REGRESSION ANALYSIS

YUGOSLAVIA - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[i]C(SC)3-III	4.63	.032	.13	.02	.02
C(SC)8	3.78	.053	.17	.03	.01
[i]-OVAL 12-VI	8.74	.003	.24	.06	.03
OCC ASP	23.19	.001	.36	.13	.07
[i]RAVEN	30.09	.001	.47	.22	.09
[i]BRS	16.86	.001	.51	.26	.05

Additional Explanatory Variables:

	pr	p	r	p
OVAL 11-A			.13	.05
-[s]OVAL 14-B			-.12	.05
[i]ED ASP	.20	.001		

---

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

[i]C(SC)3-III = Copes with Authority

C(SC)8 = Positive attitude toward Authority with Positive Affect toward Authority and Task Achievement, without Neutral Affect toward Task Achievement.

-[i]OVAL 12-VI* = Values Creativity and Intellectual Stimulation; does not value Security.

OCC ASP = Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

OVAL 11-A = Values Altruism, Self-Satisfaction, and Associates; does not value Independence, Management, and Economic Returns.

-[s]OVAL 14-B = Values Associates; does not value Success and Security

[i]ED ASP = Educational Aspiration

---

[i] = An identical predictor or explanatory factor across samples

[s] = [illegible] similar predictor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

YUGOSLAVIA - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(VOL)19	15.41	.001	.30	.09	.09
[n]C(VOL)17	7.40	.007	.37	.13	.04
[i]C(SC)4-III	6.02	.02	.41	.17	.03
[i]RAVEN	19.55	.001	.51	.26	.10
[i]BRS	15.07	.001	.58	.33	.07

Additional Explanatory Variables:

	pr	p	r	p
C(SC)8			.17	.05
C(SC)9			.17	.05
[i]OVAL 12-VI			.17	.05
[n]C(SAI)25			.22	.05
[i]ED ASP			.18	.05
[s]OVAL 16-B	.17	.04		

---

[n] = No comparable instrument in the other sample

[i] =-An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

[n]C(VOL)19 = Prefers Task Achievement and Obedience

[n]C(VOL)17 = Internal Control of academic tasks, prefers Earned Status, views world as complex, extrinsically motivated

[i]C(SC)4-III = Copes with Authority

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

c(SC)8 = Copes effectively with Authority with Neutral, not Hostile Affect

C(SC)9 = Copes effectively with Task Achievement with Positive Affect; Positive Attitude toward Interpersonal Relations with Positive Affect

[i]OVAL 12-VI = Values Intellectual Stimulation and Creativity; does not value Management

[n]C(SAI)25 = Copes effectively

[i]ED ASP = Educational Aspiration

[s]OVAL 16-B = Values Independence; does not value Security

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

Table 20a.

Stage I

REGRESSION ANALYSIS

YUGOSLAVIA - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)18	12.52	.001	.21	.04	.04
-C(SC)10	4.06	.045	.24	.06	.01
[s] OVAL 11-A	9.68	.002	.30	.09	.03
-OVAL 12-VI	3.71	.055	.32	.10	.01
[i]OCC ASP	32.89	.001	.44	.20	.10
[i]ED ASP	10.11	.002	.48	.23	.03
[i]RAVEN	18.00	.001	.52	.27	.05
[i]BRS	170.27	.001	.74	.55	.28

Additional Explanatory Variables:

	pr	p	r	p

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

^{n}C(VOL)17 = Internal Control, prefers Earned Status, views world as complex, extrinsically motivated

^{n}C(SAI)25 = Copes effectively

^{n}C(VOL)19 = Prefers Task Achievement and Obedience

C(SC)4-III = Copes with Authority

^{n}C(VOL)22 = Prefers solving problems by oneself

^{i}ED ASP = Educational Aspiration

^{i}OCC ASP = Occupational Aspiration

^{i}RAVEN = Raven Progressive Matrices

^{i}BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)5-V = Copes with Interpersonal Relations

C(SC)9 = Copes effectively with Task Achievement with Positive Affect; Positive Attitude toward Interpersonal Relations with Positive Affect

OVAL 13 = Values Success and Prestige

^{n}C(VOL)20 = Prefers instrumental action

^{s}OVAL 11-A = Values Altruism, Self-Satisfaction, Surroundings, and Associates; does not value Management, Prestige or Economic Returns

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

^{s} = A similar predictor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

YUGOSLAVIA - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	4.8%	8.6%	4.8%
Coping/Motivation (unique)	16.5%	8.2%	18.7%
Total	24.5%	21.8%	27.4%

YUGOSLAVIA - 10 Year Olds - Stage III

Aptitude (unique)	9.0%	9.7%	4.4%
Coping/Motivation (unique)	16.8%	12.6%	22.7%
Total	34.7%	26.4%	35.2%

Table 23

CORRELATIONS AMONG THE CRITERIA

YUGOSLAVIA - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.45		.46
GPA	.45		

YUGOSLAVIA - 10 Year Olds - Stage III

Reading			
Math	.57		.61
GPA	.56		

YUGOSLAVIAN 14 YEAR OLDS - RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Yugoslavian 14 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, Views of Life, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Yugoslavian students. Sex and socioeconomic status differences are then described. Finally, the regression analyses are delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were five general factors: coping with aggression, authority, anxiety, interpersonal relations, and task achievement. Most included neutral, not negative affect, in the respective behavioral area. Unit weights were constructed using those variables having a factor loading ($\leq .40$). For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same tendencies, with a major factor corresponding to each of the five behavioral areas.

As these factors appeared to be yielding similar results, a comparison was made of the first five factors (see Table 3). These factors were highly similar, with respective percentages of common variables across stages of 100%, 60%, 60%, 80%, and 100%. Some of the variables which did not load higher than .40 on both stages still showed similar direction. While the program RELATE could not be run due to different numbers of variables in the two stages, these factors were considered "identical," and appeared to indicate a stable "Yugoslavian" construct system at age 14, that defined coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\leq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that only two of the six factors were "similar," having a cosine of .8 or better (interpreted similar to a correlation coefficient). Table 7 depicts the item comparison of these two factors across the two stages. The results of this comparison indicated little similarity in constructs across time for Yugoslavian 14 year old students.

Views of Life

The Views of Life instrument was used only in Stage III. The factor analysis of these variables yielded eight factors and is depicted in Table 8.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: ineffective or defensive responding, and positive coping.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reported effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content, described earlier. The first five factors were very similar and will be referred to as "identical" factors. These factors have a Roman numeral designation in Table 11.

The Occupational Values instrument was compared by the RELATE factor comparison method. Two of these factors were "similar" (RELATE value of .80 to .90) and they received an alphabetic designation. For example, similar factor "A" consisted of original factor OVAL 11 in both samples. The unique factors in each sample are listed below these, having no comparable factor in the other sample.

In the Yugoslavian 14 year old sample, the first five Sentence Completion factors were identical across stages. While there were no identical factors in the Occupational Values comparison, two of the six comparisons were similar. These results indicate that the factor structures in the two samples were similar in some respects, giving evidence that the coping and motivation patterns represented by these factors may remain stable in the Yugoslavian 14 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males coped more effectively with anxiety and with interpersonal relations. Females, however, expressed more positive attitudes toward authority, interpersonal relations, and task achievement. In regard to Occupational Values, males placed greater value on intellectual stimulation, creativity, independence, management, and following father's occupation. Females, on the other hand, more highly valued security, esthetics, and surroundings.

In Stage III (Table 13), females expressed more neutral and less hostile affect toward interpersonal relations. In the work setting, females placed greater value on altruism, surroundings, associates, self-satisfaction, security, and esthetics. Males tended to more highly value management, economic returns, and following father's occupation. Finally, females also expressed more satisfaction gained from actual accomplishments, rather than subsequent rewards.

Across stages, males consistently placed greater value on following father's occupation than did females. In addition, males tended to more highly value managerial power, whereas females put more emphasis on job security and pleasant surroundings.

SES DIFFERENCES

There were few social class differences among Yugoslavian 14 year olds. Stage I differences are listed in Table 14. In regard to Occupational Values, lower-class students placed greater value on security, esthetics, and surroundings, whereas the middle class more highly valued intellectual stimulation, creativity, and following father's occupation. On the SAI, lower-class students reported more defensive behavior and less good coping, indicating that the middle class generally saw themselves as better copers than did the lower class.

In Stage III (Table 15), only three of twenty-five tests were significant, possibly due to chance. Middle-class students expressed more neutral, less hostile affect about interpersonal relations. The middle class also placed greater value on following father's occupation, and expressed greater preference for independent action.

The only SES differences common to both stages was that middle-class students more highly valued following father's occupation than did the lower class. In sum, it appears that there was little difference between the social classes in Yugoslavia in the coping and motivational characteristics of 14 year old students.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. Good readers reported less defensive responding than poorer readers. They were also rated highly by their peers on the Behavior Rating Scale. Although coping with anxiety was positively correlated with reading achievement, other Sentence Completion factors produced an unusual pattern of results in this sample. Good readers did not cope effectively with aggression, although they expressed a positive, not negative affect toward aggression. They did not confront problems related to persons in authority. Not surprisingly, these students also showed a lack of positive attitude toward authority and interpersonal relations. In a work setting, good readers highly valued intellectual stimulation and creativity, but not security. They had high aptitude scores and high aspirations, both educational and occupational.

In Stage III (Tables 17a and 17b), peer ratings of coping skill were not associated with reading achievement. Good readers did express a greater preference for independent action. In regard to Occupational Values, these students placed greater value on altruism, surroundings, associates, intellectual stimulation, creativity, and variety, and less value on self-satisfaction and security than poorer readers. (The apparent contradiction between OVAL 14 and OVAL 11, regarding management and economic returns, can best be interpreted as cancelling each other out.) Good readers in this sample also had high aptitude scores and high educational and occupational aspirations.

Across the two stages, good readers consistently valued creative and intellectually stimulating work. They had good aptitude and high aspirations. Coping, however, was less associated with reading achievement than in most other national samples. In fact, it was not at all predictive in Stage III and at times predicted negatively in Stage I (cf, aggression and authority). Further, peer ratings were not predictive in Stage III. In sum, it appears that reading achievement was generally not explanable by either classroom behavior or self-reported coping skills in Yugoslavian 14 year old students.

Math Achievement

There were few predictors of math achievement in Stage I (Tables 18a and 18b). Students who were good in math reported less defensive behavior and were rated higher by their peers on the Behavior Rating Scale than were poorer students. In addition, good math students had high aptitude scores and high educational and occupational aspirations. None of the Sentence Completion or Occupational Values factors were predictive of math achievement in this sample.

In Stage III, good math students coped effectively with aggression and with authority. They expressed neutral, not hostile affect about interpersonal relations, and a lack of positive affect toward anxiety-arousing situations. These students valued altruism, surroundings, and associates. They had high aptitude and high aspirations for job and school. Peer ratings were not predictive in this sample.

A comparison of the two stages shows that good math students consistently had good aptitude and strong motivation for success in school and work. As in reading achievement, however, coping scores and occupational values were not as important for success for Yugoslavian 14 year olds as in other samples, although coping with aggression and with persons in authority was predictive in Stage III.

Grade Point Average

Predictors of GPA, in Stage I, are listed in Tables 20a and 20b. Successful students reported less defensive responding and were rated higher by their peers on the Behavior Rating Scale than were poorer students. In a work setting, students with high GPA placed greater value on intellectual stimulation, creativity, altruism, self-satisfaction, and surroundings, and less value on security, and following father's occupation. In addition, these students had high aptitude scores and high educational and occupational aspirations.

In Stage III (Tables 21a and 21b), students with high GPA coped well with authority and expressed a preference for independent action as well as neutral, not hostile affect toward interpersonal relations. These students were rated highly by their peers on the Behavior Rating Scale. Also, they had high aptitude scores and high aspirations, both educational and occupational.

A comparison across stages indicated that students with high GPA had high aptitude scores and strong motivation to succeed in work and in school. Peer ratings were extremely powerful predictors of GPA, suggesting that these teachers were sensitive to students' classroom behavior in assigning grades. As with the achievement test criteria, some coping skills and occupational values predicted grades, but not the same ones from sample to sample.

PERCENTAGE OF VARIANCE

It is also useful to consider the percent of variance accounted for by aptitude and coping/motivation variables, respectively, in accounting for success on the criterion measures. It can be seen that aptitude was not always an important predictor for all criteria. It accounted for an average of 4.5% of the variance in reading. In math, aptitude was a stronger predictor (15.5%) in Stage I, but accounted for only 3.1% of the variance in Stage III. In terms of GPA, aptitude predicted only about 1% of the variance, suggesting that other factors were much more important to teachers in assigning grades. Peer ratings (BRS) may reflect these other, possibly behavioral variables, as they were, indeed, powerful predictors of GPA in both stages.

The coping/motivation variables were generally much more significant predictors than aptitude for Yugoslavian 14 year olds, accounting for an average of 18% of the variance in reading achievement, 11% in math, and 37% in GPA. While Sentence Completion and Occupational Values factors were predictive for some criteria in one stage or the other, a large part of the contribution of coping/motivational variables was determined by the motivational measures of educational and occupational aspirations, especially for GPA.

Table I

STAGE I

SENTENCE COMPLETION

YUGOSLAVIA - 14 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Attitude - Authority	-.005	.070	.115	.087	.115	.047	.039	.695*	-.010	.082
40 Att. - Interpersonal Relations	-.094	.004	-.056	.092	-.096	.032	-.018	.713*	-.001	-.023
41 Att. - Task Achievement	-.011	.045	.147	.045	.230	.008	.211	.402*	-.400*	-.088
43 Aggression - Stance	.045	.913*	.039	.012	-.025	.051	-.106	.178	.189	-.089
44 Aggression - Engagement	.027	.830*	.017	-.036	-.036	.066	-.095	.227	.301	-.124
45 Aggression - Coping Eff.	.033	.986*	-.017	.047	.003	.001	-.005	.013	-.094	-.008
46 Aggression - Neg. Affect	-.012	-.760*	.093	-.130	-.043	.066	-.102	.232	.478*	-.094
47 Aggression - Pos. Affect	.012	.760*	-.093	.130	.043	-.066	.102	-.232	-.478*	.094
48 Authority - Stance	.016	-.038	-.027	.374	.211	-.084	.167	-.028	.601*	.167
49 Authority - Engagement	.163	-.003	.028	.508*	-.002	.062	.114	-.207	.457*	-.069
50 Authority - Coping Eff.	.054	.024	.106	.851*	.066	-.029	-.045	.178	.163	.269
51 Authority - Neg. Affect	-.124	-.079	-.000	-.920*	.106	-.074	.087	-.113	.033	-.003
52 Authority - Neutral Aff.	.097	.095	-.031	.888*	-.136	.129	-.083	.070	-.054	-.256
53 Authority - Pos. Affect	.065	-.061	.100	-.031	.110	-.185	-.000	.120	.071	.825*
54 Anxiety - Stance	.921*	.061	-.009	.038	.029	.012	.016	-.037	.005	-.026
55 Anxiety - Engagement	.804*	.094	-.026	.033	.028	.094	-.038	-.065	-.042	.044
56 Anxiety - Coping Eff.	.933*	-.013	.020	.058	.048	-.002	.030	.023	-.002	.001
57 Anxiety - Neg. Affect	-.909*	.023	-.030	-.078	.055	-.140	.001	.019	-.049	-.025
58 Anxiety - Neutral Aff.	.909*	-.023	.030	.078	-.055	.140	-.001	-.019	.049	.025

STAGE I

SENTENCE COMPLETION

YUGOSLAVIA - 14 Year Olds (continued)		Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
59	Interpersonal Relations - Stance	-.028	-.021	-.024	-.075	.871*	.227	.000	-.034	.024	.100
60	IPR - Engagement	-.004	.008	-.012	-.072	.928*	.157	-.031	.052	.010	-.038
61	IPR - Coping Eff.	.105	.003	.037	.032	.675*	.683*	-.015	.053	.040	-.019
62	IPR - Negative Affect	-.223	-.011	-.029	-.095	-.150	-.929*	.019	-.026	.016	-.012
63	IPR - Neutral Affect	.219	.024	.042	.080	.253	.861*	-.026	.082	-.013	-.118
64	IPR - Positive Affect	.023	-.050	-.053	.060	-.400*	.295	.027	-.219	-.013	.512*
65	Task Achievement - Stance	-.013	-.006	.942*	.003	-.016	.041	.079	.080	-.002	.086
66	Task Ach. - Engagement	-.068	-.011	.797*	-.037	-.131	.075	-.052	.080	.096	.056
67	Task Ach. - Coping Eff.	.051	-.016	.949*	.038	.053	.001	.079	.009	-.064	-.008
68	Task Ach. - Neg. Affect	-.210	.071	-.587*	-.155	-.268	.129	.355	.167	.133	.150
69	Task Ach. - Neutral Aff.	.103	-.001	.312	.139	.158	-.042	-.877*	-.116	-.088	-.082
70	Task Ach. - Pos. Affect	.104	-.082	.259	-.011	.097	-.094	.812*	-.035	-.033	-.062

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

	Loadings									
YUGOSLAVIA - 14 Year Olds	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement Attitude	.028	.047	.002	-.044	-.069	-.057	.174	-.005	.458*	-.039
65 T.A. - Stance	.070	.904*	.127	.005	.083	.024	.079	.002	-.003	.056
66 T.A. - Engagement	-.004	.915*	.026	.005	.032	-.014	.069	.084	.080	-.013
67 T.A. - Aid/Advice	-.056	.873*	.098	-.040	.048	-.008	.006	.014	-.010	-.022
68 T.A. - Coping Effect	.116	.539*	.204	.099	.160	.077	.179	.269	.222	.150
69 T.A. - Hostile Affect	-.019	-.239	-.399	.004	-.139	.203	.005	.221	-.150	-.119
70 T.A. - Depressive Aff.	-.210	-.451*	-.207	.137	.032	.100	-.070	.215	.413*	-.069
71 T.A. - Neutral Aff.	.100	.725*	.186	-.029	-.052	-.025	-.023	-.455*	-.216	-.147
72 T.A. - Positive Aff.	.063	.512*	.177	-.089	.140	-.191	.099	.343	.025	.366
73 Interpersonal Relations Attitude	.100	-.105	.180	-.055	-.125	.065	-.048	-.186	.517*	-.052
74 I.R. - Stance	.116	-.064	.059	.881*	.003	.035	.005	-.079	-.020	-.095
75 I.R. - Engagement	.174	.025	.127	.947*	.101	.047	.041	.030	.013	-.009
76 I.R. - Aid/Advice	.169	.023	.133	.946*	.104	.044	.044	.031	.011	-.014
77 I.R. - Coping Effect	.160	.017	.071	.891*	.073	.096	.305	-.012	.027	.024
78 I.R. - Hostile Affect	-.088	-.102	-.129	-.106	.034	-.067	-.816*	-.104	.020	-.064
79 I.R. - Depressive Aff.	-.001	-.034	-.007	-.144	.048	-.021	-.356	.155	-.349	.048
80 I.R. - Neutral Aff.	.074	.107	.113	.176	-.058	.070	.905*	-.005	.192	.026
81 I.R. - Positive Aff.	-.000	.000	.000	.000	-.000	.000	-.000	.000	-.000	-.000

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

YUGOSLAVIA - 14 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.064	.055	.272	.063	.175	.040	-.018	-.026	.636*	.180
83 Auth. - Stance	.085	.119	.744*	.141	.122	.106	.188	-.106	-.033	.128
84 Auth. - Engagement	-.022	.099	.816*	.082	-.078	.059	-.112	.132	.143	.064
85 Auth. - Aid/Advice	.023	.127	.831*	.073	-.024	.032	-.060	.105	.088	.116
86 Auth. - Coping Eff.	.080	.076	.898*	.106	.045	.103	.120	-.166	.105	-.079
87 Auth. - Hostile Aff.	-.030	.059	-.647*	.056	-.117	-.146	-.145	-.055	.092	.427*
88 Auth. - Depress. Aff.	-.026	-.049	-.274	-.103	.035	.016	.004	.738*	-.095	-.111
89 Auth. - Neutral Aff.	.042	-.013	.712*	.027	.069	.106	.114	-.478*	-.006	-.264
90 Auth. - Positive Aff.	-.000	.000	.000	.000	-.000	.000	-.000	.000	.000	-.000
91 Anxiety - Attitude	-.051	.216	.262	.062	-.168	.204	-.082	.152	.052	.434*
92 Anx. - Stance	.697*	-.036	.051	.086	.073	-.223	-.085	.102	.266	-.318
93 Anx. - Engagement	.861*	.012	.039	.153	-.129	.061	-.075	-.032	.067	.077
94 Anx. - Aid/Advice	.860*	-.008	.028	.140	-.125	.076	-.081	-.086	.065	.070
95 Anx. - Coping Eff.	.919*	.090	.068	.089	.017	-.029	.063	.031	-.007	.003
96 Anx. - Hostile Aff.	-.576*	-.002	-.004	-.072	.133	-.060	-.221	.106	.251	-.435*
97 Anx. - Depressive Aff.	-.489*	-.085	-.004	-.014	-.204	-.001	-.135	-.117	-.186	.563*
98 Anx. - Neutral Aff.	.747*	.055	.038	.121	.031	.236	.271	.009	-.082	-.040
99 Anx. - Positive Aff.	.032	.018	-.079	-.150	.051	-.479*	-.044	-.002	.094	-.132

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

YUGOSLAVIA - 14 Year Olds	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.143	.031	.055	.044	.727*	-.298	-.102	-.126	-.088	.006
101 Agg. - Engagement	-.035	.016	.029	.065	.900*	.156	-.010	.014	.013	.028
102 Agg. - Aid/Advice	.009	.056	.032	.105	.899*	.161	-.006	-.009	-.039	.030
103 Agg. - Coping Effect	-.060	.122	.192	.088	.730*	.515*	.004	-.012	.027	-.074
104 Agg. - Hostile Aff.	-.145	-.021	-.150	-.019	-.141	-.879*	-.052	-.118	-.041	.142
105 Agg. - Depressive Aff.	.018	-.035	.068	.070	-.258	-.011	.035	.557*	-.240	-.234
106 Agg. - Neutral Aff.	.133	.038	.114	.015	.261	.864*	.034	-.149	.154	-.028
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR YUGOSLAVIA 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	5	3	2	4	3	5	4
64 Task Achievement - Attitude										
65 TA - Stance					.94	.90				
66 TA - Engagement					.80	.92				
*67 TA - Aid/Advice						.87				
68 TA - Coping					.95	.54				
**69 TA - Hostile					-.59	(-.24)				
**70 TA - Depressive						-.45				
71 TA - Neutral					(.31)	.73				
72 TA - Positive					(.26)	-.51				
73 Interpersonal Relations - Attitude										
74 IPR - Stance									.87	.88
75 IPR - Engagement									.93	.95
*76 IPR - Aid/Advice										.95
77 IPR - Coping									.68	.89
**78 IPR - Hostile										
**79 IPR - Depressive										
80 IPR - Neutral										
81 IPR - Positive									-.40	

Table 3
(continued)

ITEM COMPARISON FOR YUGOSLAVIA 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	5	3	2	4	3	5	4
82 Authority - Attitude										
83 Auth. - Stance							(.37)	.74		
84 Auth. - Engagement							.51	.82		
*85 Auth. - Aid/Advice								.83		
86 Auth. - Coping							.85	.90		
**87 Auth. - Hostile							-.92	-.65		
**88 Auth. - Depressive								(-.27)		
89 Auth. - Neutral							.89	.71		
90 Auth. - Positive										
*91 Anxiety - Attitude										
92 Anxiety - Stance	.92	.70								
93 Anxiety - Engagement	.80	.86								
*94 Anxiety - Aid/Advice		.86								
95 Anxiety - Coping	.93	.92								
**96 Anxiety - Hostile	-.91	-.58								
**97 Anxiety - Depressive		-.49								
98 Anxiety - Neutral	.91	.75								
*99 Anxiety - Positive										

Table 3
(continued)

ITEM COMPARISON FOR YUGOSLAVIA 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	4	2	1	4	6	5	3
100 Aggression - Stance			.91	.73						
101 Aggression - Engagement			.83	.90						
*102 Aggression - Aid/Advice				.90						
103 Aggression - Coping			.99	.73						
**104 Aggression - Hostile			-.76	(-.14)						
**105 Aggression - Depressive				(-.24)						
*106 Aggression - Neutral										
107 Aggression - Positive			.76							

---

* - This variable was only present in the Stage III instrument.

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable - "Negative Affect".

Table 4

STAGE I

OCCUPATIONAL VALUES

YUGOSLAVIA - 14 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	-.038	.007	-.352	.742*	-.123	-.147
15	Esthetics	-.090	-.126	-.354	-.562*	.466*	-.018
16	Independent	-.101	.158	.795*	-.000	.042	.014
17	Management	.235	-.347	.630*	-.137	-.048	-.070
18	Success	.111	.011	-.070	.047	.081	.793*
19	Self-Satisfaction	.011	.136	.061	.755*	.233	.065
20	Intellectual Stimulation	-.747*	.182	-.102	-.024	-.043	-.127
21	Creativity	-.796*	.119	.015	-.109	-.201	.128
22	Security	.640*	.424*	-.131	-.172	-.264	-.047
23	Prestige	-.061	-.548*	-.212	-.248	-.281	.385
24	Economic Returns	.310	-.617*	.152	-.228	.013	.089
25	Surroundings	.270	.111	.059	.027	.746*	-.099
26	Associates	.200	-.037	-.207	.338	.276	-.535*
27	Variety	-.009	.721*	.052	-.029	.034	.156
28	Follow Father	.245	-.035	.010	-.075	-.523*	-.428*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

Stage III

OCCUPATIONAL VALUES

YUGOSLAVIA - 14 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.056	-.125	.728*	-.026	-.030	-.001
15 Esthetics	-.033	-.010	-.033	-.021	-.921*	.149
16 Independence	-.062	.627*	-.232	-.037	.110	.001
17 Management	-.502*	.212	-.165	-.438*	.135	.340
18 Success	-.037	-.752*	-.219	.013	.164	.138
19 Self-Satisfaction	.024	-.010	.119	.749*	.282	.272
20 Intellectual Stimulation	.825*	.040	-.015	.016	.124	.185
21 Creativity	.769*	-.160	-.168	-.193	.040	.089
22 Security	-.200	.235	-.201	.641*	-.171	-.120
23 Prestige	-.083	-.652*	-.286	-.359	-.024	-.101
24 Economic Returns	-.507*	-.167	-.345	-.414*	.281	.180
25 Surroundings	-.146	.423*	.454*	.184	.250	.182
26 Associates	-.222	.231	.743*	-.008	.035	.036
27 Variety	.461*	.368	-.122	-.034	.063	-.023
28 Follow Father	-.169	.051	-.089	-.064	.164	-.904*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR YUGOSLAVIA 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	-.842*	.079	-.083	.483	-.034	-.209
12	.497	.480	-.162	.686	-.090	-.141
13	-.145	.580	-.410	-.275	.590	.226
14	.061	-.156	.606	.316	.707	.076
15	-.133	.268	.318	.109	-.341	.825*
16	.072	-.574	-.574	.328	.166	.445

---

* Similar factors
** Identical factors

Table 7

ITEM COMPARISON FOR YUGOSLAVIA 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

YUGOSLAVIA	A		B		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11[a]	15	16						
14 Altruism										
15 Esthetics			.47	(.15)						
16 Independence										
17 Management	(.24)*	.50								
18 Success										
19 Self-Satisfaction										
20 Intellectual Stim.	-.75	-.83								
21 Creativity	-.80	-.77								
22 Security	.64	(.20)								
23 Prestige										
24 Economic Returns	(.31)	.51								
25 Surroundings			.75	(.18)						
26 Associates										
27 Variety	(-.01)	-.46								
28 Follow Father			-.52	-.90						

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load signifiantly in one country.

Note: [a]The signs in this factor have been reversed as the factors are mirror images. See text for further details.

Table 8

Stage III

VIEWS OF LIFE

YUGOSLAVIA - 14 Year Olds Item	Loadings Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
43 Locus of Control(Internal/external)	-.056	-.019	-.051	.038	-.058	.064	.068	.494
44 Academic Locus of Control	-.043	.046	.053	.102	.248	-.062	.048	-.121
45 Action-Inaction	.587*	-.121	.041	.142	.106	.033	-.024	-.080
46 Immediate-Delayed Action	.333	.141	.087	-.043	-.180	.200	.019	.094
47 Rate of Action	-.304	-.057	.478*	-.002	-.013	.302	-.032	-.063
48 Intrinsic-Extrinsic Work Motiva.	.035	.086	.038	.354	.096	.054	.060	.013
49 Task Achievement-Interpersonal Relations	.181	-.107	.202	.142	.323	.007	.138	.328
50 Competition-Cooperation	.311	.084	-.085	.037	-.062	.014	.392	-.013
51 Independent- Obedient	.042	.617*	-.014	.115	-.013	-.098	.067	.033
52 Earned-Bestowed Status	-.016	.155	.043	.151	-.020	-.197	.254	.060
53 Confront-Avoid	.138	-.014	.033	.035	.074	.065	.429*	-.118
54 Self - Other Initiation	.030	.102	.519*	-.077	-.078	-.051	.035	-.011
55 Self - Other Solver	.109	.102	.073	.111	.054	.448*	-.139	.039
56 Self - Joint Implementation	.038	-.206	-.050	.002	-.040	.446*	.170	.067
58 Instrument - Fantasy	.036	-.093	-.071	.454*	.011	-.098	.032	.015
59 Emotional Control/Expressivity	-.044	.058	-.051	.246	.022	.093	-.090	.028
60 Activity/Passivity under Stress	.076	.349	.172	-.024	.068	.069	-.126	-.180
61 Positive/Negative Self-Esteem	.203	.079	.073	.300	-.114	.067	-.431*	-.074
62 View of Life (Complex/Simple)	-.050	.006	-.199	.004	.493*	.082	.038	.031

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

YUGOSLAVIA - 14 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	-.003	.720*
2 Passive Coping	.071	.816*
3 Active Defensive	.806*	-.090
4 Passive Defensive	.784*	.170

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

Stage III

SOCIAL ATTITUDES INVENTORY

YUGOSLAVIA - 14 Year Olds	Factor Loading
Sub-Scores	Factor 25
37 Task Achievement	.574*
38 Authority	.800*
39 Aggression	.504*
40 Interpersonal Relations	.625*
41 Anxiety	.465*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

YUGOSLAVIA - 14 Year Olds

New Factor Designation	Factor Abbreviation	COMMON FACTORS Stage I Designation	Stage III Designation	NAME
I	C(SC)	1	1	Copes with Anxiety
II	C(SC)	2	5	Copes with Aggression
III	C(SC)	3	2	Copes with Task Achievement
IV	C(SC)	4	3	Copes with Authority
V	C(SC)	5	4	Copes with Interpersonal Relations
A	OVAL	11	11	Doesn't value Intellectual Stimulation and Creativity; (Values Security, Management, and Economic Returns; doesn't value Variety).*
B	OVAL	15	16	Doesn't value Following Father's Occupation (values Esthetics and Surroundings).
		UNIQUE FACTORS		
	C(SC)	6	-	Copes effectively with Interpersonal Relations with Neutral, not Negative Affect.
	C(SC)	7	-	Positive, not Neutral Affect toward Task Achievement.
	C(SC)	8	-	Positive Attitudes toward Authority, Interpersonal Relations, and Task Achievement
	C(SC)	9	-	Negative Attitude toward Task Achievement; Negative, not Positive Affect toward Aggression; copes with Authority via Stance and Engagement
	C(SC)	10	-	Positive Affect toward Authority and Interpersonal Relations
	C(SC)	-	6	Lack of Positive Affect toward Anxiety; copes effectively with Aggression with Neutral, not Hostile Affect.
	C(SC)	-	7	Neutral, not Hostile Affect toward Interpersonal Relations
	C(SC)	-	8	Lack of Neutral Affect toward Task Achievement; Depressive, not Neutral Affect toward Authority, Depressive Affect toward Aggression.
	C(SC)	-	9	Depressive Affect toward Task Achievement; Positive Attitude toward Interpersonal Relations, Authority, and Task Achievement.
	C(SC)	-	10	Hostile Affect toward Authority; Positive Attitude and Depressive, not Hostile Affect toward Anxiety.
	OVAL	12	-	Values Security and Variety; doesn't value Prestige and Economic Returns.
	OVAL	13	-	Values Independence and Management
	OVAL	14	-	Values Altruism and Self-Satisfaction; doesn't value Esthetics.
	OVAL	16	-	Values Success; doesn't value Associates and Following Father's Occupation.
	OVAL	-	12	Values Independence and Surroundings; doesn't value Success and Prestige.
	OVAL	-	13	Values Altruism, Surroundings, and Associates
	OVAL	-	14	Values Self-Satisfaction and Security; doesn't value Management and Economic Returns
	OVAL	-	15	Doesn't value Esthetics
	C(VOL)	-	17	Prefers Action
	C(VOL)	-	18	Independent
	C(VOL)	-	19	Prefers fast Rate of Action, Self-Initiator
	C(VOL)	-	20	Gains satisfaction from Actual Accomplishments
	C(VOL)	-	21	Views Life as Complex
	C(VOL)	-	22	Self-Solver, Self-Implementor
	C(VOL)	-	23	Confronts Problems and has low Self-Esteem
	C(VOL)	-	24	Internal Locus of Control
	C(SAI)	17	-	Shows defensive behavior
	C(SAI)	18	-	Copes effectively
	C(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

YUGOSLAVIA - 14 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with Neutral, not Negative Affect	$p < .001$
C(SC)6	F < M	Copes effectively with Interpersonal Relations with Neutral, not Negative Affect	$p < .002$
C(SC)8	F > M	Positive Attitudes toward Authority, Interpersonal Relations, and Task Achievement	$p < .03$
OVAL 11-A	F > M	Values Security; doesn't value Intellectual Stimulation and Creativity	$p < .033$
OVAL 13	F < M	Values Independence and Management	$p < .025$
[s]OVAL 15-B	F > M	Values Esthetics and Surroundings; doesn't value Following Father's Occupation.	$p < .001$

---

* 6/18 (33%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The Sex difference on this factor is similar to one in the other sample

Table 13

SIGNIFICANT SEX DIFFERENCES*

YUGOSLAVIA - 14 Year Olds - Stage III

			Probability Level
C(SC)7	F > M**	Neutral, not Hostile Affect toward Interpersonal Relations.	$p < .001$
OVAL 13	F > M	Values Altruism, Surroundings, and Associates	$p < .004$
OVAL 14	F > M	Values Self-Satisfaction and Security; doesn't value Management and Economic Returns	$p < .001$
OVAL 15	F > M	Values Esthetics	$p < .002$
[s]OVAL 16-B	F < M	Values Following Father's Occupation	$p < .002$
[n]C(VOL)20	F > M	Gains satisfaction from actual accomplishments	$p < .03$

---

* 6/25 (24%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The Sex difference on this factor is similar to one in the other sample.

[n] = No comparable instrument in the other sample

Table 14

SIGNIFICANT SES DIFFERENCES*

YUGOSLAVIA - 14 Year Olds - Stage I

			Probability Level
OVAL 11-A	L > M**	Values Security; doesn't value Intellectual Stimulation and Creativity.	p < .001
[s]OVAL 15-B	L > M	Values Esthetics and Surroundings; doesn't value Following Father's occupation.	p < .005
[n]C(SAI)17	L > M	Shows defensive behavior	p < .007
[n]C(SAI)18	L < M	Copes effectively	p < .014

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these restuls were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample.

[n] = No comparable instrument in the other sample.

Table 15

SIGNIFICANT SES DIFFERENCES*

YUGOSLAVIA - 14 Year Olds - Stage III

			Probability Level
C(SC)7	L < M**	Neutral, not hostile Affect toward Interpersonal Relations.	p < .026
[s]OVAL 16-B	L < M	Values Following Father's occupation	p < .001
[n]C(VOL)18	L < M	Prefers independent action	p < .007

---

* 3/25 (12%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample.

[n] = No comparable instrument in the other sample

Table 16a.

Stage I

REGRESSION ANALYSIS

YUGOSLAVIA - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)17	11.60	.001	.21	.04	.04
-C(SC)8	8.10	.005	.27	.07	.03
-C(SC)9	1.65	.200	.28	.08	.01
-C(SC)2-II	3.93	.048	.30	.09	.01
[s]-OVAL 11-A	6.22	.013	.34	.11	.02
[i] ED ASP	53.41	.001	.52	.27	.15
[i] RAVEN	19.99	.001	.57	.32	.05
BRS	18.66	.001	.61	.37	.05

Additional Explanatory Variables:

	pr	p	r	p
C(SC)1-I			.13	.05
[i]OCC ASP	.28	.001		

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change

[n]-C(SAI)17* = Does not report defensive behavior

-C(SC)8 = Negative attitude toward Authority, Interpersonal Relations and Task Achievement.

-C(SC)9 = Positive attitude toward Task Achievement; positive, not negative Affect toward Aggression; does not cope with Authority via Stance and Engagement.

-C(SC)2-II = Does not cope with Aggression.

[s]-OVAL 11-A = Values Intellectual Stimulation and Creativity; doesn't value Security.

[i] ED ASP = Educational Aspirations

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)1-I = Copes with Anxiety.

[i]OCC ASP = Occupational Aspirations

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

YUGOSLAVIA - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n] C(VOL)18	8.99	.003	.22	.05	.05
OVAL 13*	2.32	.13	.25	.06	.01
-OVAL 14	1.89	.17	.27	.07	.01
[s] OVAL 11-A	4.08	.045	.31	.10	.02
[i] ED ASP	35.52	.001	.50	.25	.16
[i] RAVEN	8.49	.004	.54	.29	.04
BRS	2.73	NS			

Additional Explanatory Variables:

	pr	p	r	p
[i] OCC ASP			.41	.05

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

*Note that both OVAL 13 and OVAL 14 act as suppresors for OVAL 11.

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 14 Year Olds — CRITERION: Reading Achievement

Predictor Variables:

[n] C(VOL)18 = Prefers Independent Action

OVAL 13 = Values Altruism, Surroundings, and Associates.

-OVAL 14* = Values Management and Economic Returns; doesn't value Self-Satisfaction and Security.

[s] OVAL 11-A= Values Intellectual Stimulation, Creativity, and Variety; doesn't value Management and Economic Returns.

[i] ED ASP = Educational Aspirations

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i] OCC ASP = Occupational Aspirations

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

YUGOSLAVIA - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)17	8.96	.003	.18	.03	.03
[i] ED ASP	50.80	.001	.44	.19	.16
[i] RAVEN	60.81	.001	.59	.35	.15
BRS	9.22	.003	.61	.37	.02

Additional Explanatory Variables:

	pr	p	r	p
[i] OCC ASP	.18	.005		

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

[n] -C(SAI)17* = Does not report defensive behavior

[i] ED·ASP = Educational Aspirations

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i] OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

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Table 19a.

Stage III

REGRESSION ANALYSIS

Yugoslavia - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	P	Multiple R	R^2	R^2 Change
^{n}C(VOL)18	8.87	.003	.22	.05	.05
C(SC)5-II	4.76	.03	.27	.08	.03
C(SC)7	4.11	.04	.31	.10	.02
OVAL 13	4.30	.04	.35	.12	.02
^{i}ED ASP	10.60	.001	.41	.17	.05
^{i}RAVEN	6.45	.01	.45	.20	.03
BRS	.51	NS			

Additional Explanatory Variables:

	pr	p	r	p
C(SC)3-IV			.16	.05
C(SC)6			.17	.05
^{i}OCC ASP			.21	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

[n]C(VOL)18 = Prefers Independent Action

C(SC)5-II = Copes with Aggression

C(SC)7 = Neutral, not hostile Affect toward Interpersonal Relations

OVAL 13 = Values Altruism, Surroundings, and Associates

[i]ED ASP = Educational Aspirations

[i]RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)3-IV = Copes with Authority

C(SC)6 = Lack of positive Affect toward Anxiety; copes effectively with Aggression with neutral, not hostile Affect.

[i]OCC ASP = Occupational Aspirations

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 20a.

Stage I

REGRESSION ANALYSIS

YUGOSLAVIA - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]-C(SAI)17	3.69	.056	.12	.01	.01
-OVAL 11-A	13.80	.001	.25	.06	.05
OVAL 14	2.44	.119	.27	.07	.01
OVAL 15-B	3.85	.051	.29	.09	.01
[i] ED ASP	158.86	.001	.66	.44	.35
[i] OCC ASP	4.69	.031	.67	.45	.01
[i] RAVEN	3.52	.062	.68	.46	.01
[i] BRS	143.71	.001	.81	.65	.20

Additional Explanatory Variables:

	pr	p	r	p

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 14 Year Olds — CRITERION: Grade Point Average

Predictor Variables:

[n]-C(SAI)17* = Does not report defensive behavior

-OVAL 11-A* = Values Intellectual Stimulation and Creativity; doesn't value Security.

OVAL 14 = Values Altruism and Self-satisfaction; doesn't value Esthetics.

OVAL 15-B = Values Esthetics and Surroundings; doesn't value Following Father's occupation.

[i] ED ASP = Educational Aspirations

[i] OCC ASP = Occupational Aspirations

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scale

Additional Explanatory Variables:

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

YUGOSLAVIA - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n] C(VOL)18	11.36	.001	.25	.06	.06
C(SC)3-IV	5.51	.02	.30	.09	.03
[i] ED ASP	108.60	.001	.67	.45	.36
[i] OCC ASP	5.70	.02	.68	.47	.02
[i] RAVEN	4.04	.05	.69	.48	.01
[i] BRS	57.97	.001	.78	.61	.14

Additional Explanatory Variables:

	pr	p	r	p
C(SC)7			.17	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

YUGOSLAVIA - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

[n]C(VOL)18 = Prefers Independent Action

C(SC)3-IV = Copes with Authority

[i]ED ASP = Educational Aspirations

[i]OCC ASP = Occupational Aspirations

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)7 = Neutral, not hostile Affect toward Interpersonal Relations

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

YUGOSLAVIA - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	5.4%	15.5%	0.8%
Coping/Motivation (unique)	17.6%	7.4%	36.3%
Total	32.2%	34.8%	45.6%

YUGOSLAVIA - 14 Year Olds - Stage III

Aptitude (unique)	3.6%	3.1%	1.3%
Coping/Motivation (unique)	18.7%	14.6%	38.2%
Total	29.0%	20.3%	47.8%

Table 23

CORRELATIONS AMONG THE CRITERIA

YUGOSLAVIA - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.50		.46
GPA	.54		

YUGOSLAVIA - 14 Year Olds - Stage III

Reading			
Math	.34		.41
GPA	.52		

CHICAGO 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Chicago 10 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Chicago students. Sex and socioeconomic status differences are then described. Finally, the regression analyses are delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were three general factors corresponding to coping with aggression, authority, and anxiety. Coping with interpersonal relations and task achievement were each described by two factors. Factors 4 and 8 represented coping effectively via stance and engagement for these respective areas of behavior; factor 5 represented coping effectively with interpersonal relations with neutral, not negative affect. Factor 6 represented the affect variables for task achievement. Unit weights were constructed using those variables having a factor loading (≥ .40). For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factor 7 reflected attitude, and factors 9 and 10 were more diffuse. The Stage III factor analysis (Table 2) yielded factors corresponding to coping with anxiety, task achievement, authority, and interpersonal relations. Coping with aggression was described in two factors, 5 and 7. The remaining factors tended to group according to subaspects of the respective behavior areas.

As these factors appeared to be yielding similar results, a comparison was made of the five major factors in each stage which depict the coping process (see Table 3). These factors were highly similar, with respective percentages of common variables across stages of 80%, 50%, 80%, 75%, and 60%. Many of the variables which did not load higher than .40 on both stages still showed similar direction. Further, the coping process variables of stance, engagement, and coping effectiveness were present in all these factors. That is, it was the affect variables which at times loaded on separate factors, resulting in lower percentages of common variables. While the program RELATE could not be run due to different numbers of variables in the two stages, these factors were considered "identical," and appeared to indicate a relatively stable "Chicago" construct system at age 10, that defined coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\geq$ .40 were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that four of the six factors were "identical," having a cosine of .9 or better (interpreted like a correlation coefficient). Table 7 depicts the item comparison of these four factors across the two stages. The results of this comparison indicated considerable similarity in constructs across time for Chicago 10 year old students.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: Positive coping, and ineffective or defensive responding.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reported effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments which were administered to both samples. (The SAI was re-desigend for the second sample.) If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content, as described earlier. The first five factors were very similar and will be referred to as "identical" factors. These factors received a Roman numeral designation, as indicated in Table 11.

The Occupational Values instrument was compared with the RELATE factor comparison method. Four of these factors were called "identcal" (RELATE value $\geq .90$) and they received Roman numeral designations. For example, identical factor "VI" consisted of original factors OVAL 11 in both samples. The unique factors in each sample are listed below these, having no comparable factor in the other sample.

In the Chicago 10 year old sample, the first five Sentence Completion factors were identical across stages. Four of the six Occupational Values comparison were identical. These results indicate that the factor structures in the two samples were highly similar in many respects. The coping and motivation patterns represented by these factors may remain stable in the Chicago 10 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males coped more effectively with anxiety, but females were better at coping with aggression and interpersonal relations. Females also expressed more positive attitudes toward authority, interpersonal relations, and task achievement. In work, females placed greater value on intellectual stimulation and variety as opposed to prestige and economic returns. Females valued surroundings and associates rather than creativity. Also, they valued altruism and management more than males. Males placed greater value than females on following father's occupation. In addition, males more highly valued success as opposed to esthetics.

There were fewer sex differences in Stage III (Table 13). Females tended to cope better with problems related to both authority and aggression. In work, females placed greater value on esthetics as opposed to following father's occupation and on surroundings and associates in contrast to management. In addition, females reported themselves as better overall copers on the SAI.

Across stages, females tended to cope more effectively with aggression. In work, females placed greater value than males on surroundings and associates. In general, where there were sex differences in coping (except for anxiety in Stage I) females appeared to be better copers than males among Chicago 10 year olds.

SES DIFFERENCES

Stage I social class differences are listed in Table 14. Middle-class students coped more effectively than the lower class with problems related to task achievement. The middle class also reported less use of defensive behavior on the SAI. In work, the middle class placed greater value on following father's occupation.

There were only two SES differences in Stage III, possibly due to chance. Middle-class students tended to cope more effectively with authority. In work, they placed greater value on following father's occupation as opposed to esthetics.

In general, there were few social class differences in these two samples of Chicago 10 year old students.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. There was an unusual pattern of results in this sample as many affect and attitudinal variables were predictive, but in a negative direction. Good readers did cope well with task achievement with positive affect, but expressed less positive affect than poorer readers about interpersonal relations. Good readers also expressed less positive attitudes toward authority, interpersonal relations, and task achievement. In regard to affect and task achievement, positive or negative, but not neutral affect toward task achievement was actually predictive of success in reading. Better readers coped more effectively with anxiety. Defensive behavior on the SAI was a positive predictor in the equation but there was a suppression effect involved here. Defensive behavior (poor coping) actually had a negative simple correlation of -.13 with reading, which is to be expected. However, this factor, C(SAI)18, also correlated significantly with C(SC)9 (.22) and C(SC)7 (-.16), two previous factors in the regression equation. Thus, it appears that these factors "suppressed" the negative relationship of defensive behavior to reading achievement so that C(SAI)18 ended up as a positive predictor in the regression equation. Still, the best interpretation follows the simple correlation; good readers did report less defensive behavior than poorer readers.

Good readers in Stage I were also rated higher by their peers on the PRS. They had higher aptitude scores and higher aspirations for both career and education. Finally, coping with interpersonal relations was negatively correlated with reading achievement.

In sum, it appears that Chicago 10 year olds who were good readers did not have the best of attitudes or affect toward authority, and especially interpersonal relations where, in fact, coping was actually negatively correlated with reading achievement. These students coped well with anxiety and task achievement, however, and peer ratings and self-reports suggested that they were good copers. They also had good aptitude and motivation.

Stage III reading achievement data were not available for Chicago so this analysis could not be done in the 1968 sample.

Math Achievement

Stage I predictors of math achievement are listed in Tables 18a and 18b. The pattern of results was quite similar to that for reading achievement. That is, good math students tended to cope well with task achievement with positive affect, but lacked positive affect toward interpersonal relations. They did not cope well with interpersonal relations. Also, positive or negative, but not neutral affect toward task achievement was correlated with reading and achievement.

In work, good math students placed greater value on self-satisfaction and security than poorer students. They also more highly valued creativity as opposed to surroundings and associates. In addition, these students had higher aptitude scores and higher educational aspirations and were rated higher by their peers on the BRS. Finally, report of defensive behavior on the SAI was negatively correlated and occupational aspiration was positively correlated with math achievement for Stage I Chicago 10 year olds.

Stage III math achievement data were not available for Chicago, so this analysis could not be done.

Grade Point Average

Predictors of GPA for Stage I are listed in Tables 20a and 20b. As in reading and math, students with high GPA coped effectively with task achievement, with positive affect, but lacked positive affect toward interpersonal relations. Positive or negative, but not neutral affect toward achievement was also predictive of GPA. As with reading achievement, there was a suppression effect involving C(SAI)18, self-report of defensive behavior. This factor actually had a significant, negative simple correlation with GPA, but shared variance with C(SC)6 and especially C(SC)9, so that these two previous factors "suppressed" the negative relationship between defensive behavior and GPA. As with reading achievement, the best interpretation, in line with the simple correlation of -.15, is that students with higher GPA reported less defensive behavior. Successful students were also rated higher by their peers on the BRS. In work, they placed greater value on self-satisfaction and security than poorer students. In addition, successful students had higher aptitude scores and higher aspirations for both career and education.

In Stage III (Tables 21a and 21b), students with higher grades reported themselves as better copers on the SAI and were rated higher by their peers on the BRS. They did not cope effectively with anxiety. Successful students also expressed more depressive affect toward problems related to interpersonal relations, authority, and aggression. In work, these students more highly valued esthetics in contrast to following father's occupation. In addition, they had higher aptitude scores. Finally, valuing esthetics but not independence was also correlated with GPA in Stage III.

Aspirations were not associated with GPA in Stage III, an unusual result. In fact, the only predictors in both stages were aptitude and peer ratings.

PERCENTAGE OF VARIANCE

In order to assess the practical usefulness of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivation variables. The unique variance of both aptitude and coping/motivation variables was that increment variance obtained beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

Aptitude was an important predictor of reading and math achievement in Stage I, uniquely accounting for 20.2% and 30.4% of the respective variance. Coping/motivation factors were significant, though not especially powerful predictors of these criteria, uniquely accounting for 6.8% of the variance in reading and 6.0% in math. These findings were consistent with the unusual results concerning affects and attitudes in this Chicago 10 year old sample.

Aptitude was much less powerful in predicting GPA, uniquely accounting for only 5.4% in Stage I and 12.7% in Stage III. Coping/motivation was more predictive in both stages, uniquely accounting for 7.8% of the variance in Stage I and 13.8% in Stage III. Thus, coping/motivation appeared to have been more important for grades than for skills achievement.

Some properties that reflected both aptitude and coping/motivation substantially increased the total variance explained, on all criteria. The total variance explained ranged from 20% to 43%. This gave added weight to the explanatory power and the practical usefulness of the latter measures. Still, the Chicago 10 year old students presented an unusual pattern of results.

Table 1

STAGE I

SENTENCE COMPLETION

CHICAGO - 10 Year Olds		Loadings									
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Attitude - Authority	.035	.052	.172	.008	.037	.086	.778*	-.010	.033	-.089
40	Att. - Interpersonal Relations	.087	.089	.029	.024	.039	.053	.740*	-.133	-.005	.069
41	Att. - Task Achievement	-.027	.096	.178	.280	.096	-.192	.534*	.155	-.051	-.195
43	Aggression - Stance	.007	.803*	.133	.075	.100	.013	.048	.016	.113	.371
44	Aggression - Engagement	-.028	.678*	.087	.005	.082	-.017	.166	-.028	.202	.477*
45	Aggression - Coping Eff.	.039	.888*	.075	.015	.149	.006	.086	.063	.011	.038
46	Aggression - Neg. Affect	-.128	-.863*	-.111	.014	-.108	-.063	-.005	-.014	.166	.283
47	Aggression - Pos. Affect	.128	.863*	.111	-.014	.108	.063	.005	.014	-.166	-.283
48	Authority - Stance	-.028	.059	.766*	.093	.060	-.058	.133	.135	.156	.366
49	Authority - Engagement	-.018	.054	.596*	-.135	-.034	.208	.189	.044	.066	-.048
50	Authority - Coping Eff.	.013	.111	.833*	.140	.193	-.047	.070	.129	.041	.258
51	Authority - Neg. Affect	-.139	-.177	-.784*	-.096	-.242	-.046	.013	.054	.251	.264
52	Authority - Neutral Aff.	.135	.177	.779*	.091	.241	.038	-.000	-.054	-.232	-.318
53	Authority - Pos. Affect	.026	-.010	.002	.029	-.006	.057	-.096	.003	-.129	.407*
54	Anxiety - Stance	.919*	.039	.038	.098	.016	.009	.095	.025	.042	.002
55	Anxiety - Engagement	.764*	.024	.010	.071	-.027	-.019	.037	.031	.132	-.017
56	Anxiety - Coping Eff.	.911*	.054	.048	.053	.063	.033	.088	.022	-.029	.014
57	Anxiety - Neg. Affect	-.915*	-.052	-.018	.065	-.085	-.073	.055	-.035	.069	-.014
58	Anxiety - Neutral Aff.	.915*	.052	.018	-.065	.085	.073	-.055	.035	-.069	.014

STAGE I

SENTENCE COMPLETION

CHICAGO - 10 Year Olds (continued)	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	.133	-.028	.006	.020	.054	.007	-.066	.846*	-.043	.039
60 IPR - Engagement	.009	.087	.131	.024	.057	.105	-.019	.795*	-.037	-.02
61 IPR - Coping Eff.	.078	.189	.215	.156	.726*	.034	.126	.448*	.071	.00
62 IPR - Negative Affect	-.105	-.206	-.196	-.071	-.926*	-.065	-.044	.013	-.060	.00
63 IPR - Neutral Affect	.104	.211	.199	.078	.909*	.070	.036	-.005	.007	.00
64 IPR - Positive Affect	.009	-.040	-.027	-.056	.144	-.035	.069	-.062	.439*	-.00
65 Task Achievement - Stance	.039	.010	.087	.910*	.092	.072	.110	.018	-.147	.05
66 Task Ach. - Engagement	.037	.011	.032	.881*	.025	.008	-.033	.031	.194	-.06
67 Task Ach. - Coping Eff.	.073	.052	.090	.703*	.208	.287	.187	.017	-.405*	.18
68 Task Ach. - Neg. Affect	-.110	-.075	-.148	-.131	-.261	-.742*	-.174	-.079	.344	-.23
69 Task Ach. - Neutral Aff.	.131	.080	.099	.136	.040	.922*	-.016	.096	.236	-.01
70 Task Ach. - Pos. Affect	-.057	-.025	.028	-.040	.236	-.439*	.218	-.044	-.708*	.28

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* These variables had a factor loading of .40 or better and were used to construct a unit weight score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

CHICAGO - 10 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Att.	-.087	.074	.102	-.029	.081	.106	.070	.116	.091	-.525*
65 T.A. - Stance	-.055	.070	.807*	.103	-.011	.383	.010	.009	-.073	-.016
66 T.A. - Engagement	.040	.078	.901*	.016	.041	.181	.001	.043	-.034	-.037
67 T.A. - Aid/Advice	.016	.038	.883*	.070	-.008	.152	-.068	-.022	-.008	.028
68 T.A. - Coping Effect	-.085	.051	.900*	.090	-.063	.170	-.029	.019	-.016	.032
69 T.A. - Hostile Affect	.085	-.053	-.199	-.109	.018	-.698*	-.014	-.003	.150	.055
70 T.A. - Depressive Aff.	-.012	-.035	-.144	-.020	-.011	-.657*	-.132	-.034	-.015	-.128
71 T.A. - Neutral Aff.	.062	.055	.259	.066	.044	.922*	.035	-.070	.039	-.072
72 T.A. - Positive Aff.	-.214	-.009	-.125	.024	-.098	-.321	.072	.171	-.244	.191
73 Interpersonal Relations Attitude	-.099	.003	.478*	.074	.040	-.018	.299	-.005	.044	-.108
74 I.R. - Stance	.072	.082	.114	.838*	.037	-.008	.140	.149	-.013	.058
75 I.R. - Engagement	.019	.132	.002	.921*	.061	.015	.135	-.139	-.002	.032
76 I.R. - Aid/Advice	-.005	.142	.011	.909*	.066	.002	.116	-.138	.005	.014
77 I.R. - Coping Effect	.044	.151	.099	.891*	-.058	.144	.072	.195	-.189	-.048
78 I.R. - Hostile Affect	-.036	-.232	-.072	-.469*	.168	-.344	-.009	-.022	.493*	.111
79 I.R. - Depressive Aff.	-.053	.130	-.035	-.183	.016	.058	.027	-.681*	-.101	.138
80 I.R. - Neutral Aff.	.066	.117	.092	.536*	-.150	.246	-.016	.467*	-.407*	-.175
81 I.R. - Positive Aff.	.004	-.057	-.078	-.135	-.055	.099	.070	.067	.587*	-.123

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

CHICAGO - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	-.207	-.063	.222	.247	-.035	.031	.395	.080	.090	-.175
83 Auth. - Stance	-.067	.803*	.084	.116	.017	.034	.075	.148	-.081	-.061
84 Auth. - Engagement	.074	.835*	.103	.173	-.041	.020	.110	-.160	.037	-.022
85 Auth. - Aid/Advice	.019	.859*	.098	.118	-.005	.038	.129	-.136	-.027	-.046
86 Auth. - Coping Eff.	-.041	.872*	.003	.126	-.041	.025	.130	.250	-.221	-.072
87 Auth. - Hostile Aff.	.124	-.372	.087	-.080	-.079	-.226	-.185	.058	.558*	.106
88 Auth. - Depress. Aff.	-.101	-.353	.101	.008	.118	.041	.127	-.684*	-.106	-.058
89 Auth. - Neutral Aff.	.001	.577*	-.129	.045	-.032	.118	.019	.540*	-.321	-.025
90 Auth. - Positive Aff.	-.065	.003	-.271	.086	-.141	.159	.096	.054	.021	-.032
91 Anxiety - Attitude	-.103	.016	-.017	-.015	.074	.191	.124	.155	-.001	.495*
92 Anx. - Stance	.865*	.005	-.023	.100	.017	.015	-.045	.018	.141	.246
93 Anx. - Engagement	.849*	-.065	-.020	-.015	-.026	-.063	.047	-.130	-.161	.035
94 Anx. - Aid/Advice	.852*	-.055	-.063	-.059	-.031	-.053	.037	-.122	-.146	.090
95 Anx. - Coping Eff.	.894*	.004	-.028	.039	.000	.046	.082	.107	-.011	.027
96 Anx. - Hostile Aff.	-.197	-.110	-.046	.030	.056	-.023	-.321	.034	.596*	.127
97 Anx. - Depressive Aff.	-.665*	-.077	-.028	-.098	.021	-.057	.015	-.333	-.312	.192
98 Anx. - Neutral Aff.	.596*	.174	.011	.079	-.056	.094	.181	.267	-.083	-.495*
99 Anx. - Positive Aff.	.249	-.105	.089	-.014	.015	-.067	-.059	.048	.127	.586*

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

CHICAGO - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.073	-.019	-.011	-.082	.724*	.105	-.388	.200	.181	.055
101 Agg. - Engagement	-.029	-.064	.064	.036	.880*	-.002	.338	-.036	-.058	-.016
102 Agg. - Aid/Advice	-.001	-.007	.054	.086	.885*	-.013	.305	-.040	-.058	-.031
103 Agg. - Coping Effect	.096	.149	.032	.191	.303	.003	.816*	-.050	-.178	-.013
104 Agg. - Hostile Aff.	-.111	-.207	.077	-.145	-.011	-.113	-.864*	.162	.056	.002
105 Agg. - Depressive Aff.	.042	.023	-.055	.136	-.236	.026	-.030	-.542*	-.010	-.188
106 Agg. - Neutral Aff.	.092	.197	-.052	.083	.119	.101	.879*	.086	-.051	.085
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR CHICAGO 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
CHICAGO	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	5	3	2	4	3	8	4
64 Task Achievement - Attitude										
65 TA - Stance							.91	.81		
66 TA - Engagement							.88	.90		
*67 TA - Aid/Advice								.88		
68 TA - Coping Eff.							.70	.90		
**69 TA - Hostile Aff.										
**70 TA - Depress. Aff.										
71 TA - Neutral Aff.										
72 TA - Positive Aff.										
73 Interpersonal Relations - Attitude							(.02)	.48		
74 IPR - Stance									.85	.84
75 IPR - Engagement									.80	.92
*76 IPR - Aid/Advice										.91
77 IPR - Coping Eff.									.45	.89
**78 IPR - Hostile Aff.									(.01)	-.47
**79 IPR - Depress. Aff.										(-.18)
80 IPR - Neutral Aff.									(-.06)	.54
81 IPR - Positive Aff.										

CHICAGO	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	5	3	2	4	3	5	4
82 Authority - Attitude										
83 Auth. - Stance					.76	.80				
84 Auth. - Engagement					.60	.84				
*85 Auth. - Aid/Advice						.86				
86 Auth. - Coping Eff.					.83	.87				
**87 Auth. - Hostile Aff.					-.78	(-.37)				
**88 Auth. - Depress. Aff.						(-.35)				
89 Auth. - Neutral Aff.					.78	.58				
90 Auth. - Positive Aff.										
*91 Anxiety - Attitude										
92 Anx. - Stance	.92	.87								
93 Anx. - Engagement	.76	.85								
*94 Anx. - Aid/Advice		.85								
95 Anx. - Coping Eff.	.91	.89								
**96 Anx. - Hostile Aff.	-.92	(-.19)								
**97 Anx. - Depressive Aff.		-.67								
98 Anx. - Neutral Aff.	.92	.60								
*99 Anx. - Positive Aff.										

CHICAGO	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	5	3	2	4	3	5	4
100 Aggression - Stance			.80	.72						
101 Agg. - Engagement			.68	.88						
*102 Agg. - Aid/Advice				.89						
103 Agg. - Coping Eff.			.89	(.30)						
**104 Agg. - Hostile Aff.			-.86	(-.01)						
**105 Agg. - Depress. Aff.				(-.24)						
*106 Agg. - Neutral Aff.										
107 Agg. - Positive Aff.			.86							

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* - This variable was only present in the Stage III instrument.

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable -- "Negative Affect."

Table 4

STAGE I

OCCUPATIONAL VALUES

CHICAGO - 10 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	.289	-.043	.719*	.216	.202	-.034
15	Esthetics	-.135	-.180	-.158	.261	-.110	-.769*
16	Independent	-.366	.298	-.022	.361	-.187	-.160
17	Management	.003	-.012	.777*	-.159	-.189	.170
18	Success	-.188	-.280	-.021	.331	-.075	.684*
19	Self-Satisfaction	.235	.180	.117	.173	.665*	.026
20	Intellectual Stimulation	.776*	-.066	.080	.101	.023	.127
21	Creativity	.381	-.446*	-.252	-.254	-.379	-.028
22	Security	-.107	-.059	-.143	-.157	.814*	-.000
23	Prestige	-.449*	-.393	-.323	.236	-.266	-.010
24	Economic Returns	-.580*	.017	-.355	.022	-.124	.319
25	Surroundings	.113	.674*	-.382	-.122	.144	.136
26	Associates	-.060	.783*	.062	.108	-.037	-.081
27	Variety	.706*	.059	-.055	.087	-.087	-.042
28	Follow Father	-.158	-.037	-.013	-.872*	-.047	-.014

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

CHICAGO - 10 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.050	.777*	.023	.244	-.035	-.009
15 Esthetics	-.056	-.100	-.130	.660*	-.069	-.437*
16 Independence	-.034	-.049	.010	.000	-.029	.821*
17 Management	-.377	.587*	-.203	.003	-.407*	.229
18 Success	-.438*	-.068	-.322	-.284	.336	-.026
19 Self-Satisfaction	.027	.139	.762*	.066	-.020	-.014
20 Intellectual Stimulation	.797*	.138	-.031	.004	-.099	-.185
21 Creativity	.489*	.001	-.391	-.347	-.232	-.341
22 Security	.001	.032	.718*	-.114	-.006	.077
23 Prestige	.117	-.662*	-.250	.156	-.239	.112
24 Economic Returns	-.439*	-.587*	-.142	.134	-.100	.025
25 Surroundings	-.206	-.011	.495*	.121	.438*	-.145
26 Associates	.001	.108	.017	.021	.849*	.057
27 Variety	.723*	.014	-.084	.176	.164	.296
28 Follow Father	-.160	-.100	-.082	-.758*	-.075	-.168

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR CHICAGO 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.91*	.36	.06	-.12	.13	-.07
12	-.19	.20	.21	.11	.92*	.18
13	-.30	.90*	-.16	.06	-.25	.10
14	.21	-.11	-.02	.63	-.15	.73
15	-.06	.09	.96*	-.02	-.25	.02
16	-.03	-.04	-.03	-.76	-.03	.65

---

* Similar factors

Table 7

ITEM COMPARISON FOR CHICAGO 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES
(Factor Loadings)

CHICAGO	VI		VII		VIII		IX					
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	12	15	13	12	15	13				
14 Altruism					.72	.78						
15 Esthetics												
16 Independence												
17 Management			(-.01)*	-.41	.78	.59						
18 Success	(-.19)	-.44										
19 Self-Satisfaction							.67	.76				
20 Intell. Stim.	.78	.80										
21 Creativity	(.38)	.49	-.45	(-.23)								
22 Security							.81	.72				
23 Prestige	-.45	(.12)			(-.32)	-.66						
24 Economic Ret.	-.58	-.44			(-.36)	-.59						
25 Surroundings			.67	.44			(.14)	.50				
26 Associates			.78	.85								
27 Variety	.71	.72										
28 Follow Father												

---

* These numbers in parentheses are the corresponding loading for each country on those variables tha were not used in the unit weighted scores, but load significantly in one country.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

CHICAGO - 10 Year Olds	Loadings	
	Factor 17	Factor 18
Sub-Scores		
1 Active Coping	.827*	-.042
2 Passive Coping	.854*	-.004
3 Active Defensive	-.218	.778*
4 Passive Defensive	.151	.823*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10
STAGE III
SOCIAL ATTITUDES INVENTORY

CHICAGO - 10 Year Olds	Factor Loading
Sub-Scores	Factor 17
37 Task Achievement	.571*
38 Authority	.667*
39 Aggression	.734*
40 Interpersonal Relations	.760*
41 Anxiety	.373

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

CHICAGO - 10 Year Olds

New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
	COMMON FACTORS			
I	C(SC)	1*	1*	Copes with Anxiety
II	C(SC)	2	5	Copes with Aggression
III	C(SC)	3	2	Copes with Authority
IV	C(SC)	4	3	Copes with Task Achievement
V	C(SC)	8	4	Copes with Interpersonal Relations
VI	OVAL	11	11	Values Intellectual Stimulation, Variety and does not value Economic Returns (Values Creativity and does not value Prestige or Success.
VII	OVAL	12	15	Values Surroundings and Associates (does not value Creativity or Management)
VIII	OVAL	13	12	Values Altruism and Management (Does not value Prestize or Economic Returns)
IX	OVAL	15	13	Values Self-satisfaction and Security (Values Surroundings)
	UNIQUE FACTORS			
	C(SC)	6	-	Neutral, not positive or negative Affect toward Task Achievement
	C(SC)	7	-	Positive attitude toward Authority, Interpersonal Relations, and Task Achievement.
	C(SC)	5	-	Copes effectively with Interpersonal Relations with Neutral not Negative Affect.
	C(SC)	9	-	Positive Affect toward Interpersonal Relations (Does not cope effectively with Task Achievement or have positive Affect toward Task Achievement.
	C(SC)	10	-	Engages Aggression and has positive Affect toward Authority
	OVAL	14	-	Does not value Following Father's occupation
	OVAL	16	-	Values Success; doesn't value Esthetics.
	C(SC)	-	6	Neutral, not hostile or depressive Affect toward Task Achievement.
	C(SC)	-	7	Copes effectively with Aggression with neutral, not hostile Affect toward Aggression.
	C(SC)	-	8	Neutral Affect toward Interpersonal Relations and Authority without depressive Affect toward Authority or Aggression.
	C(SC)	-	9	Hostile Affect toward Interpersonal Relations, Authority and Anxiety; positive, not neutral Affect toward Interpersonal Relations.
	C(SC)	-	10	Positive attitude and positive, not neutral Affect toward Anxiety, positiveAttitude toward Task Achievement.
	OVAL	-	14	Values Esthetics; does not value Following Father's occupation.
	OVAL	-	16	Values Independence; does not value Esthetics.

---

* These numbers appear in the Factor Analysis Tables 1, 2, 4, 5.

** The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

CHICAGO - 10 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with neutral, not negative Affect.	$p < .03$
C(SC)2-II	F > M	Copes effectively with Aggression via Stance and Engagement with positive, not negative Affect.	$p < .001$
C(SC)5	F > M	Copes effectively with Interpersonal Relations with neutral, not negative Affect.	$p < .005$
C(SC)7	F > M	Positive attitude toward Authority, Interpersonal Relations, and Task Achievement.	$p < .001$
C(SC)8-V	F > M	Copes effectively with Interpersonal Relations via Stance and Engagement.	$p < .045$
C(SC)10	F > M	Copes with Aggression via Engagement with positive Affect toward Authority.	$p < .001$
OVAL 11-VI	F > M	Values Intellectual Stimulation and Variety; doesn't value Prestige and Economic Returns.	$p < .001$
[1]OVAL 12-VII	F > M	Values Surroundings and Associates; doesn't value Creativity.	$p < .001$
OVAL 13-VIII	F > M	Values Altruism and Management.	$p < .016$
OVAL 14	F < M	Follows Father	$p < .001$
OVAL 16	F < M	Values Success; doesn't value Esthetics.	$p < .001$

---

* 11/18 (61%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[1] = An identical sex difference in both samples (Stages I and III)

Table 13

SIGNIFICANT SEX DIFFERENCES*

CHICAGO - 10 Year Olds -- Stage III

			Probability Level
C(SC)2-III	F > M**	Copes effectively with Authority	$p < .016$
C(SC)7	F > M	Copes effectively with Aggression with neutral, not hostile Affect.	$p < .002$
OVAL 14	F > M	Values Esthetics; doesn't Follow Father.	$p < .001$
[i]OVAL 15-VII	F > M	Values Surroundings and Associates; doesn't value Management.	$p < .037$
[n]C(SAI)17	F > M	Copes effectively	$p < .001$

---

* 5/17 (29%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample.

Table 14

SIGNIFICANT SES DIFFERENCES*

CHICAGO - 10 Year Olds - Stage I

			Probability Level
C(SC)4-IV	L < M**	Copes effectively with Task Achievement via Stance and Engagement	$p < .045$
C(SC)9	L > M	Does not cope effectively with Task Achievement without positive Affect toward Task Achievement and with positive Affect toward Interpersonal Relations.	$p < .008$
OVAL 14	L < M	Follows Father	$p < .001$
C(SAI)18	L > M	Self-report of defensive coping	$p < .009$

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

Table 15

SIGNIFICANT SES DIFFERENCES*

CHICAGO - 10 Year Olds - Stage III

			Probability Level
C(SC)2-III	L < M**	Copes effectively with Authority	p < .035
OVAL 14	L > M	Values Esthetics; doesn't Follow Father	p < .042

---

* 2/17 (12%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

Table 16a.

Stage I

REGRESSION ANALYSIS

CHICAGO - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)9	20.18	.001	.26	.07	.07
-C(SC)7	6.73	.010	.30	.09	.02
-C(SC)6	3.62	.058	.32	.10	.01
C(SC)1-I	4.63	.032	.34	.12	.01
C(SAI)18	3.80	.052	.36	.13	.01
OCC ASP	21.94	.001	.44	.19	.07
ED ASP	3.83	.051	.45	.21	.01
RAVEN	91.47	.001	.64	.41	.20
BRS	18.31	.001	.67	.45	.04

Additional Explanatory Variables:

	pr	p	r	p
- C(SC)5			-.18	.05

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Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO - 10 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

-C(SC)9* = Lacks positive Affect toward Interpersonal Relations, copes effectively with Task Achievement with positive Affect.
-C(SC)7 = Lacks positive attitude toward Authority, Interpersonal Relations, and Task Achievement.
-C(SC)6 = Positive or Negative, not Neutral Affect toward Task Achievement
C(SC)1-I = Copes with Anxiety
C(SAI)18 = Shows defensive behavior
OCC ASP = Occupational Aspiration
ED ASP = Educational Aspiration
RAVEN = Raven Progressive Matrices
BRS = Behavior Rating Scale

Additional Explanatory Variables:

-C(SC)5 = Doesn't cope well with Interpersonal Relations; with negative not neutral Affect.

---

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

CHICAGO - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)9	14.23	.001	.22	.05	.05
-C(SC)8-V	4.35	.038	.25	.06	.01
OVAL 15-IX	3.99	.047	.28	.08	.01
-OVAL 12-VII	5.48	.020	.31	.10	.02
ED ASP	8.38	.004	.35	.12	.03
RAVEN	143.87	.001	.65	.43	.30
BRS	18.49	.001	.68	.46	.04

Additional Explanatory Variables:

	pr	p	r	p
- C(SC)6			-.16	.05
- C(SAI)18			-.13	.05
OCC ASP	.15	.01		

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO - 10 Year Olds   CRITERION: Math Achievement

Predictor
Variables:

-C(SC)9* = Lacks positive Affect toward Interpersonal Relations; Copes effectively with Task Achievement with positive Affect toward Task Achievement.

-C(SC)8-V = Does not cope with Interpersonal Relations

OVAL 15-IX= Values Self-Satisfaction and Security

-OVAL 12-VII= Values Creativity; does not value Surroundings or Associates

ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

-C(SC)6 = Positive or Negative, not Neutral Affect toward Task Achievement

-C(SAI)18 = Does not show defensive behavior

OCC ASP = Occupational Aspiration

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

CHICAGO - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SC)9	9.04	.003	.18	.03	.03
-C(SC)6	4.31	.039	.22	.05	.01
[n] C(SAI)18	4.78	.030	.25	.06	.02
OVAL 15-IX	4.42	.036	.28	.08	.01
ED ASP	12.99	.001	.35	.12	.04
OCC ASP	8.14	.005	.38	.15	.03
[i] RAVEN	18.07	.001	.45	.20	.05
[i] BRS	113.75	.001	.66	.44	.24

Additional Explanatory Variables:

	pr	p	r	p

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

- C(SC)9* = Lacks Positive Affect toward Interpersonal Relations; Copes effectively with Task Achievement with Positive Affect.

- C(SC)6 = Positive or Negative, not Neutral Affect toward Task Achievement.

[n]C(SAI)18 = Shows defensive behavior

OVAL 15-IX= Values Self-Satisfaction and Security

ED ASP = Educational Aspiration

OCC ASP = Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

CHICAGO - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n] C(SAI)17	9.29	.003	.25	.06	.06
-C(SC)1-I	6.67	.01	.33	.11	.04
-C(SC)8	4.47	.04	.37	.14	.03
OVAL 14	9.10	.003	.44	.19	.05
[i] RAVEN	24.74	.001	.56	.32	.13
[i] BRS	27.33	.001	.66	.43	.12

Additional Explanatory Variables:

	pr	p	r	p
OVAL 16			-.19	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 21b.

DESCRIPTION OF REGRESSION FACTORS

CHICAGO - 10 Year Olds   CRITERION: Grade Point Average

Predictor
Variables:

^{n}C(SAI)17 = Copes effectively

-C(SC)1-I* = Does not cope well with Anxiety

-C(SC)8 = Does not show Neutral Affect toward Interpersonal Relations and Authority; shows Depressive Affect toward Authority and Aggression

OVAL 14 = Values Esthetics; does not value Following Father's Occupation

^{i}RAVEN = Raven Progressive Matrices

^{i}BRS = Behavior Rating Scale

Additional Explanatory Variables:

-OVAL 16 = Values Esthetics; does not value Independence

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

CHICAGO - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	20.2%	30.4%	5.4%
Coping/Motivation (unique)	6.8%	6.0%	7.8%
Total	40.7%	42.7%	19.9%

CHICAGO - 10 Year Olds - Stage III

Aptitude (unique)			12.7%
Coping/Motivation (unique)			13.8%
Total			31.7%

Table 23

CORRELATIONS AMONG THE CRITERIA

CHICAGO - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.66		.49
GPA	.52		

No Stage III data

CHICAGO 14 YEAR OLDS - RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in 14 year old students from the 1965 (Stage I) and 1968 (Stage III) samples in the Chicago area (not the City of Chicago). The results include factor analyses of the coping/ motivational instruments: Sentence Completion, Occupational Values, Views of Life, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two cohorts of students. Sex and socioeconomic status differences are described next. Finally, the regression analyses are delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were five general factors: coping with aggression, authority, anxiety, interpersonal relations, and task achievement. Most included neutral, not negative affect, in the respective behavioral area. Unit weights were constructed using those variables having a factor loading ($\leq$ .40). For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same tendencies, with a major coping factor for each of the five behavioral areas.

As these factors appeared to be yielding similar results, a comparison of the first five factors was examined (see Table 3). These factors were highly similar, with percentages of common variables across stages of 100%, 50%, 100%, 50%, and 60%. Usually, additional variables which did not load higher than .40 in both stages still showed similarity. While the program RELATE could not be run due to different numbers of variables in the two stages, these factors were considered "identical," and appeared to indicate a stable "Chicago" construct system at age 14, that defined coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\leq$ .40 were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that five of the six factors were "similar," having a cosine of .8 or better, and one factor was identical (cosine greater than .90). Table 7 depicts the item comparison of these six factors across the two stages. The results of this comparison indicated some similarity in constructs across time for 14 year old students in the Chicago area.

Views of Life

The Views of Life instrument was used only in Stage III. The factor analysis of these variables yielded eight factors and is depicted in Table 8.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: ineffective or defensive responding, and positive coping.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reported effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 was designed to facilitate the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors were made on the basis of their factor content which was described earlier. The first five factors were very similar and will be referred to as "identical" factors. These factors have a Roman numeral designation in Table 11.

The Occupational Values instrument was compared with the RELATE factor comparison method. One of these factors was called "identical" (RELATE value of ≤ .90) and received a Roman numeral designation. Five additional factors were "similar" (RELATE value of .80 to .90).

For example, similar factor "A" consisted of original factors OVAL 11 in both samples. The unique factors in both samples are listed below these, having no comparable factor in the other sample.

In the Chicago 14 year old sample, the first five Sentence Completion factors were identical across stages. There was one identical factor in the Occupational Values comparison, and five of the six factors were similar. These results indicate that the factor structures in the two samples were similar in many respects, giving evidence that the coping and motivation patterns represented by these factors may be stable across time in this population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Fifty percent of the factors showed sex differences. Males tended to report themselves as coping more effectively with anxiety. Females coped with aggression and interpersonal relations better than males. The girls also had more positive attitudes toward authority, interpersonal relations and task achievement. On Occupational Values, females valued altruism and self-satisfaction rather than prestige or economic returns more than males. Also, girls valued security, surroundings, and associates rather than management, more than males. Independence and associates, rather than creativity, were more preferred by females. Males put more value than females on following father's occupation, and on success rather than esthetics.

In Stage III, thirty-two percent of the factors showed sex differences. Only one Sentence Completion factor resulted in sex differences, with females showing more depressed affect toward interpersonal relations, authority, anxiety, and aggression. On Views of Life, males more than females preferred bestowed status and self-implementation. Females more than males valued work for its own sake rather than for extrinsic reasons. On Occupational Values, females more than males preferred altruism and management to success, prestige or economic returns. Girls also valued security, surroundings and associates over creativity, more than the boys. These same females showed preference for intellectual stimulation and variety over management. Males preferred following father's occupation more than females, whereas females preferred esthetics more than males.

Examining the sex differences in both samples, there was one identical factor that showed consistent sex differences across samples. Males more than females preferred following father's occupation. Three of the similar factors (A, B and D) of the Occupational Values also showed consistent sex differences across samples, indicating considerable stability in the sex-linked patterns of values, in this Chicagoland population.

SES DIFFERENCES

In the Stage I sample, thirty-three percent of the factors showed socioeconomic differences. There were no differences on the Sentence Completion factors. Lower-class children gave more value to security, surroundings and associates, rather than management. Middle-class students preferred success rather than esthetics, in comparison with lower-class students. Middle-class students preferred following father's occupation, and independence and associates rather than creativity. Lower-class children reported both more coping and more defensive behavior than middle-class children, indicating that the lower-class children were giving themselves more extreme scores on both factors.

In Stage III, twenty-eight percent of the factors indicated differences due to socioeconomic status. Middle-class students coped more effectively with task achievement than lower-class children. There were several SES differences on Occupational Values. Middle-class more than lower-class students preferred independence rather than success or self-satisfaction. Also, middle-class students valued esthetics and following father's occupation more than lower-class students. On Views of Life, middle-class students showed a preference for bestowed status and self-implementation when compared with lower class. The middle class reported a higher internal sense of control and a greater tendency to confront problems than the lower class. Also, middle-class children placed higher rewards on intrinsic rather than extrinsic work values.

In both samples, one identical factor showed consistent SES differences. Middle-class students were more inclined than lower-class students to want to follow their father's occupation. Two other "similar" Occupational Values factors showed consistent differences due to socioeconomic status.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. Good readers had high aptitude scores and had aspirations for a high level of education. They were rated by their peers as being able to cope effectively with all aspects of classroom behavior. They reported not using defensive behavior; however, in contrast with the peer ratings, these students did not describe themselves as coping well (SAI). Nonetheless, these students coped well in peer relationships (SC). In terms of Occupational Values, these students did not value intellectual stimulation, creativity or variety. Additional variables that correlated with good reading were valuing independence and associates rather than creativity, and preferring success rather than esthetics.

Reading achievement data were not available in the Stage III sample.

Math Achievement

Chicago students who were good in math in the Stage I sample had few distinguishing characteristics. Neither aptitude nor peer ratings predicted success in math. These students did aspire to attain high educational goals and evidenced good coping with aggression and interpersonal relations. Another correlate of math achievement was not valuing intellectual stimulation, creativity nor variety.

Math achievement data were not available in the Stage III sample.

Grade Point Average

Chicago students who received good grades had high aptitude scores, sought high educational goals and were rated by peers as good copers. These students coped well with aggression and had positive attitudes toward authority, interpersonal relations and task achievement. They valued altruism and self-satisfaction rather than prestige or economic returns. These students did not value intellectual stimulation, variety nor creativity. Other variables that correlated with good grades were coping with task achievement, high occupational aspirations, not showing defensive behavior, valuing success rather than esthetics, and independence and associates rather than creativity.

In the Stage III sample, students who achieved good grades had high aptitude scores and their peers rated them as good copers. These students reported coping well, although they expressed hostile affect about task achievement. They preferred earned status, and joint implementation of solutions to problems. They also valued intellectual stimulation and variety as opposed to management. Other variables that correlated with GPA were coping with interpersonal relations, valuing altruism and management rather than success, prestige or economic returns. Valuing security, surroundings, and associates, rather than creativity, also correlated with GPA.

Across the two samples, only aptitude and peer ratings were consistent predictors of grades. None of the individual coping scores predicted achievement in the same way, in the two samples. One of the similar occupational value factors showed consistent predictive power; students who achieved good grades preferred altruism and self-satisfaction to prestige or economic returns. Valuing intellectual stimulation, variety, and creativity actually worked in opposite directions in the two samples.

PERCENTAGE OF VARIANCE

In Table 22, the percent of variance accounted for by the aptitude and coping/motivation variables is presented. The aptitude measure accounted for relatively little variance in Stage I: .7% of reading, 0% of math, and 4% of GPA. The coping/motivation variables accounted for 12%, 11.7%, and 22.3% of the reading, math and GPA variance, respectively, in Stage I. The total percent of variance for each criterion was 17.9%, 12.4%, and 37.2%. In Stage III a total of 30.7% of the GPA variance was accounted for, with aptitude uniquely contributing 14.7% and coping/motivation providing 7.9% unique variance.

Table 1

STAGE I

SENTENCE COMPLETION

CHICAGO - 14 Year Olds	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Attitude - Authority	.014	.124	.029	.124	.185	.043	.757*	.055	.060	.053
40 Att. - Interpersonal Relations	.031	.054	.020	-.043	-.063	.014	.755*	.013	-.083	-.146
41 Att. - Task Achievement	.055	.085	.077	.043	.175	.150	.578*	-.023	.257	-.080
43 Aggrassion - Stance	.064	.810*	.068	.062	.045	.018	.098	.379	-.115	.072
44 Aggression - Engagement	-.012	.680*	.004	.012	.091	-.003	.153	.464*	-.164	.176
45 Aggression - Coping Eff.	.059	.893*	.101	.055	.036	-.031	.067	.002	.054	.034
46 Aggression - Neg. Affect	-.130	-.863*	-.140	-.170	.011	-.067	-.025	.219	-.140	.159
47 Aggression - Pos. Affect	.130	.863*	.140	.170	-.011	.067	.025	-.219	.140	-.159
48 Authority - Stance	.042	.060	.058	.552*	.172	.100	.061	.572*	.276	-.099
49 Authority - Engagement	.044	.045	.013	.243	.106	.031	-.054	-.007	.663*	-.241
50 Authority - Coping Eff.	.055	.092	.097	.727*	.129	.075	.117	.484*	.214	-.012
51 Authority - Neg. Affect	-.153	-.163	-.184	-.880*	.003	.014	-.023	.058	-.063	-.057
52 Authority - Neutral Aff.	.145	.157	.182	.885*	.003	-.003	.001	-.065	-.011	.039
53 Authority - Pos. Affect	.073	.053	.021	-.016	-.058	-.089	.186	.059	.633*	.154
54 Anxiety - Stance	.917*	.036	.085	.057	-.027	-.000	.027	.056	-.000	-.014
55 Anxiety - Engagement	.757*	.022	-.015	-.044	-.095	.016	.006	.041	.136	-.040
56 Anxiety - Coping Eff.	.908*	.108	.127	.111	.062	-.005	.080	.027	-.044	-.010
57 Anxiety - Neg. Affect	-.889*	-.067	-.096	-.110	-.127	.034	.006	.052	-.003	.026
58 Anxiety - Neutral Aff.	.889*	.067	.096	.110	.127	-.034	-.006	-.052	.003	-.026

STAGE I

SENTENCE COMPLETION

Table 1 (continued)

CHICAGO - 14 Year Olds (continued)

Item		Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
59	Interpersonal Relations - Stance	.066	.016	.714*	.008	-.036	-.015	-.113	.336	.072	-.156
60	IPR - Engagement	.048	.079	.596*	-.046	-.025	.102	-.008	.340	-.059	-.370
61	IPR - Coping Eff.	.080	.137	.918*	.135	.082	.061	.127	.023	.021	.034
62	IPR - Negative Affect	-.170	-.142	-.816*	-.253	-.076	-.004	-.061	.259	.008	-.224
63	IPR - Neutral Affect	.182	.147	.814*	.252	.075	.003	.080	-.258	-.004	.135
64	IPR - Positive Affect	-.099	-.042	.021	.010	.009	.007	-.161	-.008	-.034	.751
65	Task Achievement - Stance	.062	.051	.039	.069	.934*	.045	.118	.040	.011	-.022
66	Task Ach. - Engagement	.028	-.017	-.019	-.145	.838*	-.084	-.010	.045	.123	.145
67	Task Ach. - Coping Eff.	.086	.073	.122	.288	.840*	.015	.171	.002	-.094	-.104
68	Task Ach. - Neg. Affect	-.109	-.053	-.159	-.457*	-.412*	.409*	-.016	.074	.278	.264
69	Task Ach. - Neutral Aff.	.066	-.034	-.014	.132	.165	-.954*	-.103	-.051	-.052	-.081
70	Task Ach. - Pos. Affect	.026	.094	.174	.287	.204	.757*	.142	-.009	-.209	-.160

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighte score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

	Loadings									
CHICAGO - 14 Year Olds	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.459*	.121	.146	.115	.173	-.165	.120	.062	.288	-.105
65 T.A. - Stance	.878*	.027	.113	.125	.006	-.007	-.026	.006	-.189	-.014
66 T.A. - Engagement	.904*	-.035	.087	.085	.058	.010	-.004	.002	-.148	-.018
67 T.A. - Aid/Advice	.855*	-.047	.052	.051	.160	-.044	-.031	-.041	-.087	.033
68 T.A. - Coping Effect	.887*	.060	.128	.181	.098	-.021	-.004	-.003	-.103	.086
69 T.A. - Hostile Affect	-.229	-.165	-.101	-.013	.026	.131	.002	.086	.594*	-.038
70 T.A. - Depressive Aff.	-.092	.146	-.026	.003	.012	-.154	.293	-.214	.377	-.116
71 T.A. - Neutral Aff.	.388	.023	.001	-.106	-.123	.042	-.021	-.002	-.749*	-.377
72 T.A. - Positive Aff.	-.283	.041	.104	.157	.141	-.096	-.129	.039	.301	.622*
73 Interpersonal Relations Attitude	.334	-.157	-.047	-.110	.027	.067	.357	.432*	.044	.082
74 I.R. - Stance	.198	-.093	.065	.745*	-.068	.039	-.145	-.052	.086	-.010
75 I.R. - Engagement	.204	-.062	.038	.882*	-.012	.037	.134	-.047	.146	-.001
76 I.R. - Aid/Advice	.198	-.060	.039	.885*	-.012	.044	.126	-.045	.145	-.001
77 I.R. - Coping Effect	.075	.074	.160	.921*	.147	-.044	-.020	.031	-.072	-.030
78 I.R. - Hostile Affect	.154	-.184	-.161	-.611*	-.283	.107	-.200	.015	.226	.013
79 I.R. - Depressive Aff.	-.018	-.072	-.017	-.105	.091	.020	.700*	-.174	.166	.019
80 I.R. - Neutral Aff.	-.130	.225	.162	.644*	.194	-.114	-.338	.116	-.329	-.027
81 I.R. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

CHICAGO - 14 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.432*	.029	.098	.145	.404*	-.147	.231	.294	.146	.184
83 Auth. - Stance	.111	.035	.599*	.025	.035	-.198	-.238	.026	.288	-.034
84 Auth. - Engagement	.061	.015	.675*	.130	.049	.132	-.003	-.013	-.103	.012
85 Auth. - Aid/Advice	.097	.054	.679*	.117	.088	.110	-.080	-.001	-.048	.017
86 Auth. - Coping Eff.	.121	.064	.917*	.086	.043	-.093	-.083	.008	-.001	-.010
87 Auth. - Hostile Aff.	-.092	.045	-.750*	-.106	.012	-.105	-.318	-.040	.039	.072
88 Auth. - Depress. Aff.	.123	-.055	-.246	.163	-.052	.306	.660*	.097	-.005	-.037
89 Auth. - Neutral Aff.	-.006	-.011	.864*	.034	.024	-.106	-.159	-.011	-.041	.011
90 Auth. - Positive Aff.	.027	.056	.026	.112	.013	-.086	-.086	-.138	.054	-.342
91 Anxiety - Attitude	.248	.013	-.000	-.026	.049	-.214	.000	-.090	.031	.433*
92 Anx. - Stance	-.014	.634*	-.048	-.127	-.090	.057	-.240	.569*	.125	-.158
93 Anx. - Engagement	.021	.912*	-.007	-.006	-.056	.098	.036	-.071	-.088	.160
94 Anx. - Aid/Advice	.003	.903*	-.002	-.005	-.006	.100	.057	-.067	-.105	.184
95 Anx. - Coping Eff.	-.001	.658*	.084	-.012	.068	.012	-.030	.549*	.034	-.193
96 Anx. - Hostile Aff.	-.038	-.448*	-.162	-.270	-.241	.094	-.363	-.130	.251	-.120
97 Anx. - Depressive Aff.	.010	-.412*	-.022	.075	.097	-.046	.444*	-.299	-.270	.522*
98 Anx. - Neutral Aff.	.039	.689*	.117	.112	.114	-.042	-.122	-.123	.105	-.423*
99 Anx. - Positive Aff.	-.038	.013	.026	.006	-.068	.037	-.079	.862*	-.039	.026

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

CHICAGO - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.267	.108	.117	-.181	-.342	.612*	-.139	.145	.022	.109
101 Agg. - Engagement	-.041	.071	-.011	.005	.353	.854*	.026	.009	-.005	-.028
102 Agg. - Aid/Advice	-.033	.090	-.017	.045	.332	.858*	.059	.006	.012	-.026
103 Agg. - Coping Effect	.175	-.008	.075	.119	.883*	.230	.040	-.021	.019	.023
104 Agg. - Hostile Aff.	-.127	-.011	-.065	-.066	-.922*	-.058	-.104	.032	-.027	.030
105 Agg. - Depressive Aff.	-.028	.122	-.113	.067	.038	-.272	.492*	.051	-.069	-.126
106 Agg. - Neutral Aff.	.137	-.032	.104	.043	.908*	.153	-.069	-.050	.051	.014
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR CHICAGO 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	6	3	4	4	3	5	1
64 Task Achievement - Attitude									(.18)	.46
65 TA - Stance									.93	.88
66 TA - Engagement									.84	.90
*67 TA - Aid/Advice										.86
68 TA - Coping									.84	.89
**69 TA - Hostile									-.41	(-.23)
**70 TA - Depressive							.46	(.01)		(-.09)
71 TA - Neutral										
72 TA - Positive										
73 Interpersonal Relations - Attitude										
74 IPR - Stance					.71	.75				
75 IPR - Engagement					.60	.88				
*76 IPR - Aid/Advice						.89				
77 IPR - Coping					.92	.92				
**78 IPR - Hostile					-.82	-.61				
**79 IPR - Depressive						(-.11)				
80 IPR - Neutral					.81	.64				
81 IPR - Positive										

Table 3
(continued)

ITEM COMPARISON FOR CHICAGO 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	6	3	4	4	3	5	1
82 Authority - Attitude										
83 Auth. - Stance							.55	(.10)		
84 Auth. - Engagement							(.24)	.60		
*85 Auth. - Aid/Advice								.68		
86 Auth. - Coping							.73	.92		
**87 Auth. - Hostile							-.88	-.75		
**88 Auth. - Depressive								(-.25)		
89 Auth. - Neutral							.89	.86		
90 Auth. - Positive										
*91 Anxiety - Attitude										
92 Anxiety - Stance	.92	.63								
93 Anxiety - Engagement	.76	.91								
*94 Anxiety - Aid/Advice		.90								
95 Anxiety - Coping	.91	.66								
**96 Anxiety - Hostile	-.89	-.45								
**97 Anxiety - Depressive		-.41								
98 Anxiety - Neutral	.89	.69								
*99 Anxiety - Positive										

Table 3

(continued)

ITEM COMPARISON FOR CHICAGO 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	6	3	4	4	3	5	1
100 Aggression - Stance			.81	.61						
101 Aggression - Engagement			.68	.85						
*102 Aggression - Aid/Advice				.86						
103 Aggression - Coping			.89	(.23)						
**104 Aggression - Hostile			-.86	(-.06)						
**105 Aggression - Depressive				(-.27)						
*106 Aggression - Neutral										
107 Aggression - Positive			.86							

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* - This variable was only present in the Stage III instrument

II - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable - "Negative Affect"

Table 4

STAGE I

OCCUPATIONAL VALUES

CHICAGO - 14 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	.760*	-.321	-.012	-.033	-.057	.215
15	Esthetics	-.221	-.000	-.123	-.721*	-.020	.331
16	Independent	-.210	.008	.137	-.020	.805*	-.124
17	Management	.310	-.690*	-.247	.112	-.042	-.000
18	Success	-.269	-.121	-.188	.760*	-.025	.203
19	Self-Satisfaction	.670*	.163	.018	.061	-.081	-.006
20	Intellectual Stimulation	.373	-.086	.749*	.015	-.067	.067
21	Creativity	-.356	-.028	.400*	-.121	-.539*	-.164
22	Security	.152	.566*	-.335	.318	-.257	-.045
23	Prestige	-.700*	-.222	-.234	-.102	-.103	.128
24	Economic Returns	-.657*	.068	-.300	.256	.006	-.001
25	Surroundings	.199	.698*	-.191	-.076	.084	.067
26	Associates	.230	.421*	-.092	-.182	.435*	.320
27	Variety	.161	-.047	.799*	-.029	.069	.045
28	Follow Father	-.066	-.067	-.098	.042	.014	-.923*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

Stage III

OCCUPATIONAL VALUES

CHICAGO - 14 Year Olds Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	.806*	-.099	-.067	.029	.070	.187
15 Esthetics	-.045	-.206	-.094	.038	-.908*	.077
16 Independence	.116	.016	.021	.760*	-.067	.228
17 Management	.497*	-.277	-.516*	-.259	.311	-.091
18 Success	-.432*	-.085	-.249	-.439*	.376	.336
19 Self-Satisfaction	.358	.392	.318	-.456*	-.183	.293
20 Intellectual Stimulation	.180	-.298	.747*	-.092	-.057	-.036
21 Creativity	-.018	-.588*	.249	.376	.105	-.006
22 Security	-.071	.649*	-.092	-.142	.098	.034
23 Prestige	-.680*	-.225	-.243	.067	-.150	.105
24 Economic Returns	-.759*	-.021	-.139	-.139	.187	.003
25 Surroundings	-.013	.714*	-.113	.207	.016	-.134
26 Associates	.311	.518*	.024	.179	.166	.037
27 Variety	.179	-.203	.785*	.092	.211	.072
28 Follow Father	-.069	.040	-.059	-.167	.062	-.911*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR CHICAGO 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.883*	.314	.126	-.320	.061	-.005
12	-.316	.850*	.387	.086	-.142	.029
13	.091	-.368	.872*	.262	.147	.075
14	-.223	.093	.004	-.356	.884*	.187
15	.250	.186	-.267	.832*	.357	.108
16	.022	-.033	-.049	-.048	-.216	.973**

---

* Similar

** Identical

Table 7

ITEM COMPARISON FOR CHICAGO 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES
(Factor Loadings)

	A		B		C		D		E		VI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	12	12	13	13	14	15	15	14	16	16
14 Altruism	.76	.81										
15 Esthetics							-.72	-.91				
16 Independence									.81	.76		
17 Management	(.31)*	.50	-.69	(-.28)	(-.25)	-.52						
18 Success	(-.27)	-.43					.76	(.38)	(-.03)	-.44		
19 Self-Satis.	.67	(.36)							(-.08)	-.46		
20 Intell. Stim.					.75	.75						
21 Creativity			(-.03)	-.59	.40	(.25)			.54	(.38)		
22 Security			.57	.65								
23 Prestige	-.70	-.68										
24 Economic Returns	-.66	-.76										
25 Surroundings			.70	.71								
26 Associates			.42	.52					.44	(.18)		
27 Variety					.80	.79						
28 Follow Father											-.92	-.9

---

* These number in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 8

Stage III

VIEWS OF LIFE

CHICAGO - 14 Year Olds	Loadings							
Item	Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
43 Locus of Control(Internal/external)	-.085	-.073	.447*	-.110	.109	.092	.008	.153
44 Academic Locus of Control	.003	.022	.012	-.007	.475*	.035	.077	.040
45 Action-Inaction	.126	.539*	.075	.192	-.131	.009	.235	-.081
46 Immediate-Delayed Action	-.083	.642*	.051	-.143	.070	.024	-.168	.147
47 Rate of Action	.129	.066	.097	.110	.025	-.009	.082	.548*
48 Intrinsic-Extrinsic Work Motiv.	-.035	.040	-.033	.042	.025	.537*	.020	-.037
49 Task Achievement-Interpersonal Relations	.105	-.034	.116	-.485*	.009	-.029	.053	-.136
50 Competition-Cooperation	.366	-.147	-.052	-.027	.258	.024	.006	.087
51 Independent-Obedient	.046	-.026	.283	.374	.041	-.077	.062	-.021
52 Earned-Bestowed Status	-.548*	-.039	.191	.012	.081	.045	.026	-.104
53 Confront-Avoid	-.039	.060	.432*	.024	-.088	-.035	.022	-.106
54 Self- Other Initiation	.066	-.040	.007	-.009	.018	.269	.226	.050
55 Self-Other Solver	.219	.060	.024	.027	.041	-.026	-.053	-.122
56 Self-Joint Implementation	.433*	-.029	.037	-.152	.451*	.010	-.077	-.077
58 Instrument - Fantasy	-.082	-.002	-.013	.006	.060	.042	.532*	.033
59 Emotional Control/Expressivity	.050	-.101	-.254	-.057	-.036	.054	.094	-.128
60 Activity/Passivity under Stress	-.210	-.031	.031	.349	-.133	.243	-.009	-.020
61 Positive/Negative Self-Esteem	.128	.086	-.075	-.154	-.351	.249	.340	.140
62 View of Life(Complex/Simple)	-.288	.012	.065	.130	.088	-.063	-.069	-.110

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

CHICAGO - 14 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	.647*	-.152
2 Passive Coping	.821*	.214
3 Active Defensive	-.480*	.568*
4 Passive Defensive	.087	.890*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

Stage III

SOCIAL ATTITUDES INVENTORY

CHICAGO - 14 Year Olds	Factor Loading
Sub-Scores	Factor 25
37 Task Achievement	.651*
38 Authority	.796*
39 Aggression	.725*
40 Interpersonal Relations	.589*
41 Anxiety	.606*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

CHICAGO - 14 Year Olds

		COMMON FACTORS		
New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1	2	Copes with Anxiety
II	C(SC)	2	6	Copes with Aggression
III	C(SC)	3	4	Copes with Interpersonal Relations
IV	C(SC)	4	3	Copes with Authority
V	C(SC)	5	1	Copes with Task Achievement
VI	OVAL	16	16	Does not value Following Father's Occupation
A	OVAL	11	11	Values Altruism; doesn't value Prestige and Economic Returns. (Values Management and Self-Satisfaction; doesn't value Success.)*
B	OVAL	12	12	Values Security, Surroundings, and Associates. (Doesn't value Management and Creativity.)
C	OVAL	13	13	Values Intellectual Stimulation and Variety. (Values Creativity; doesn't value Management.)
D	OVAL	14	15	Doesn't value Esthetics. (Values Success.)
E	OVAL	15	14	Values Independence. (Values Associates; doesn't value Success, Self-Satisfaction, and Creativity.)
		UNIQUE FACTORS		
	C(SC)	6	-	Negative and Positive, not Neutral Affect toward Task Achievement
	C(SC)	7	-	Positive Attitudes toward Authority, Interpersonal Relations, and Task Achievement.
	C(SC)	8	-	Copes with Aggression via Engagement; copes effectively with Authority via Stance.
	C(SC)	9	-	Copes with Authority via Engagement with Positive Affect
	C(SC)	10	-	Positive Affect toward Interpersonal Relations
	C(SC)	-	5	Positive Attitude toward Authority; copes effectively with Aggression with Neutral, not Hostile Affect.
	C(SC)	-	7	Depressive Affect toward Interpersonal Relations, Authority, Anxiety, and Aggression.
	C(SC)	-	8	Positive Attitude toward Interpersonal Relations; copes effectively with Anxiety via Stance with Positive Affect.
	C(SC)	-	9	Hostile, not Neutral Affect toward Task Achievement
	C(SC)	-	10	Positive Affect toward Task Achievement; Positive Attitude toward Anxiety with Depressive, not Neutral Affect.
	C(VOL)	-	17	Prefers Bestowed Status, Self-Implementor
	C(VOL)	-	18	Prefers Immediate Action
	C(VOL)	-	19	Internal Locus of Control, Confronts Problems
	C(VOL)	-	20	Concern with Interpersonal Relations
	C(VOL)	-	21	Internal Academic Locus of Control, Self-Implementor
	C(VOL)	-	22	Intrinsically Motivated
	C(VOL)	-	23	Gains satisfaction from Actual Accomplishments
	C(VOL)	-	24	Prefers fast Rate of Action
	C(SAI)	17	-	Copes effectively
	C(SAI)	18	-	Shows defensive behavior
	C(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

CHICAGO - 14 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with Neutral, not Negative Affect.	$p < .001$
C(SC)2-II	F > M	Copes effectively with Aggression via Stance and Engagement with Positive, not Negative Affect.	$p < .002$
C(SC)3-III	F > M	Copes effectively with Interpersonal Relations via Stance and Engagement with Neutral, not Negative Affect.	$p < .006$
C(SC)7	F > M	Positive Attitudes toward Authority, Interpersonal Relations, and Task Achievement.	$p < .001$
[s]OVAL 11-A	F > M	Values Altruism and Self-Satisfaction; doesn't value Prestige and Economic Returns.	$p < .001$
[s]OVAL 12-B	F > M	Values Security, Surroundings, and Associates; doesn't value Management.	$p < .008$
[s]OVAL 14-D	F < M	Values Success; doesn't value Esthetics.	$p < .002$
OVAL 15-E	F > M	Values Independence and Associates; doesn't value Creativity.	$p < .001$
[i]OVAL 16-VI	F < M	Values Following Father's Occupation	$p < .001$

---

* 9/18 (50%) of the sifnificance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The Sex difference on this factor is similar to one in the other sample.

[i] = An identical sex difference in both samples (Stages I and III).

Table 13

SIGNIFICANT SEX DIFFERENCES*

CHICAGO - 14 Year Olds - Stage III

			Probability Level
C(SC)7	F > M**	Depressive Affect toward Interpersonal Relations, Authority, Anxiety, and Aggression.	$p < .014$
[s]OVAL 11-A	F > M	Values Altruism and Management; doesn't value Success, Prestige, and Economic Returns.	$p < .001$
[s]OVAL 12-B	F > M	Values Security, Surroundings, and Associates; doesn't value Creativity.	$p < .048$
OVAL 13-C	F > M	Values Intellectual Stimulation and Variety; doesn't value Management.	$p < .001$
[s]OVAL 15-D	F > M	Values Esthetics	$p < .008$
[i]OVAL 16-VI	F < M	Values Following Father's Occupation.	$p < .002$
[n]C(VOL)17	F < M	Satisfaction based upon superficial end product (Bestowed Status); prefers to work by oneself.	$p < .007$
[n]C(VOL)22	F > M	Values work for its own sake	$p < .028$

---

* 8/25 (32%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[s] = The Sex difference on this factor is similar to one in the other sample.

[i] = An identical sex difference in both samples (Stages I and III).

[n] = No comparable instrument in the other sample.

Table 14

SIGNIFICANT SES DIFFERENCES*

CHICAGO - 14 Year Olds - Stage I

			Probability Level
OVAL 12-B	L > M**	Values Security, Surroundings, and Associates; doesn't value Management.	$p < .021$
[s]OVAL 14-D	L < M	Values Success; doesn't value Esthetics	$p < .017$
[s]OVAL 15-E	L < M	Values Independence and Associates; doesn't value Creativity	$p < .013$
[i]OVAL 16-VI	L < M	Values Following Father's occupation	$p < .001$
[n]C(SAI)17	L > M	Reports good coping and active defensive behavior	$p < .026$
[n]C(SAI)18	L > M	Reports defensive coping	$p < .029$

---

* 6/18 (33%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 15

SIGNIFICANT SES DIFFERENCES*

CHICAGO - 14 Year Olds - Stage III

			Probability Level
C(SC)1-V	L < M**	Copes effectively with Task Achievement with positive Attitude toward Task Achievement and Authority.	$p < .041$
[s]OVAL 14-E	L < M	Values Independence; doesn't value Success and Self-satisfaction.	$p < .007$
[s]OVAL 15-D	L < M	Values Esthetics	$p < .044$
[i]OVAL 16-VI	L < M	Values Following Father's occupation	$p < .014$
[n]C(VOL)17	L < M	Satisfaction based on superficial end product (Bestowed Status); prefers to work by oneself.	$p < .028$
[n]C(VOL)19	L < M	Internal Locus of Control; prefers to confront problem.	$p < .019$
[n]C(VOL)22	L < M	Values work for its own sake	$p < .003$

---

* 7/25 (28%) of the significance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

Table 16a.

Stage I

REGRESSION ANALYSIS

CHICAGO - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SAI)18	9.20	.003	.19	.04	.04
C(SC)3-III	3.55	.061	.23	.05	.01
-C(SAI)17	4.56	.034	.26	.07	.02
-OVAL 13-C	7.99	.005	.32	.10	.03
ED ASP	20.47	.001	.41	.17	.07
RAVEN	1.98	.160	.42	.18	.01
BRS	12.56	.001	.47	.22	.04

Additional Explanatory Variables:

	pr	p	r	p
OVAL 15-E	.16	.011		
OVAL 14-D	.13	.046		

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:

-C(SAI)18[*] = Does not report defensive behavior

C(SC)3-III = Copes with Interpersonal Relations

-C(SAI)17 = Does not cope effectively

-OVAL 13-C = Does not value Intellectual Stimulation, Creativity, and Variety.

ED ASP = Educational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

OVAL 15-E = Values Independence and Associates; doesn't value Creativity.

OVAL 14-D = Values Success; doesn't value Esthetics.

---

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

CHICAGO - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)8	18.12	.001	.27	.07	.07
C(SC)3-III	4.76	.030	.30	.09	.02
ED ASP	9.66	.002	.35	.12	.04

Additional Explanatory Variables:

	pr	p	r	p
-OVAL 13-C	-.13	.044		

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:

C(SC)8 = Copes effectively with Aggression via Stance and Engagement

C(SC)3-III=Copes with Interpersonal Relations

ED ASP = Educational Aspirations

Additional Explanatory Variables:

-OVAL 13-C* = Does not value Intellectual Stimulation, Creativity, and Variety.

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

CHICAGO - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)8	24.02	.001	.30	.09	.09
C(SC)7	10.32	.002	.36	.13	.04
[s]-OVAL 13-C	9.63	.002	.40	.16	.03
[s] OVAL 11-A	14.05	.001	.46	.21	.05
ED ASP	42.70	.001	.58	.33	.12
[i] RAVEN	15.15	.001	.61	.37	.04
[i] BRS	47.43	.001	.69	.48	.11

Additional Explanatory Variables:

	pr	p	r	p
C(SC)5-V	.14	.034		
[n]-C(SAI)18	-.14	.028		
OVAL 14-D	.14	.028		
OVAL 15-E	.20	.002		
OCC ASP	.15	.022		

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

Table 20b.

Stage I

REGRESSION ANALYSIS

CHICAGO - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)8 = Copes effectively with Aggression via Stance and Engagement.

C(SC)7 = Positive attitudes toward Authority, Interpersonal Relations, and Task Achievement.

[s]-OVAL 13-C[*] = Does not value Intellectual Stimulation, Creativity, and Variety.

[s] OVAL 11-A = Values Altruism and Self-satisfaction; does not value Prestige and Economic Returns.

ED ASP = Educational Aspirations

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)5-V = Copes with Task Achievement

[n]-C(SAI)18 = Does not report defensive behavior

OVAL 14-D = Values Success; doesn't value Esthetics.

OVAL 15-E = Values Independence and Associates; doesn't value Creativity.

OCC ASP = Occupational Aspirations

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

CHICAGO - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)25	6.97	.01	.22	.05	.05
C(SC)9	6.41	.01	.30	.09	.04
-[n]C(VOL)17	4.48	.04	.35	.12	.03
[s]OVAL 13-C	5.81	.02	.40	.16	.04
[i]RAVEN	27.85	.001	.55	.31	.15
[i]BRS	11.72	.001	.60	.36	.06

Additional Explanatory Variables:

	pr	p	r	p
C(SC)4-III			.18	.05
[s]OVAL 11-A			.16	.05
- OVAL 12-B	-.17	.04		

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

CHICAGO - 14 Year Olds CRITERION: Grade Point Average

Predictor
Variables:

^{n}C(SAI)25 = Reports good coping

C(SC)9 = Hostile, not neutral Affect toward Task Achievement.

-^{n}C(VOL)17* = Prefers Earned Status and to work with others.

^{s}OVAL 13-C = Values Intellectual Stimulation and Variety; doesn't value Management.

^{i}RAVEN = Raven Progressive Matrices

^{i}BR = Behavior Rating Scale

Additional Explanatory Variables:

	pr	p	r	p
C(SC)4-III = Copes with Interpersonal Relations				
^{s}OVAL 11-A = Values Altruism and Management; doesn't value Success, Prestige, and Economic Returns.				
- OVAL 12-B = Doesn't value Security, Surroundings, and Associates, values Creativity.				

---

^{n} = No comparable instrument in the other sample

^{s} = A similar predictor across samples

^{i} = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

CHICAGO - 14 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	.7%	0%	4%
Coping/Motivation (unique)	12.3%	11.7%	22.3%
Total	17.9%	12.4%	37.2%
CHICAGO - 14 Year Olds - Stage III			
Aptitude (unique)	No data	No data	14.7%
Coping/Motivation (unique)	No data	No data	7.9%
Total	No data	No data	30.7%

Table 23

CORRELATIONS AMONG THE CRITERIA

CHICAGO - 14 Year Olds - Stage I	Reading Achievement	Math Achievement	GPA
Reading			
Math	.52		.65
GPA	.65		

CHICAGO BLACK 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Chicago Black 10 year old students from the 1965 (Stage I) sample. There are no data for minority samples in Stage III (1968). The first results presented are the factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. Sex differences are described next. Finally, the findings from the regression analyses are presented, showing the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analysis of the Sentence Completion variables resulted in ten factors which accounted for substantial percentage of the variance. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The analysis appears in Table 1. There were three general factors, corresponding to coping with authority, anxiety, and task achievement. Coping with aggression and with interpersonal relations were both described in two separate factors; one depicts the coping sequence, and the other contains coping effectiveness plus affect. Unit weights were constructed using those variables having a factor loading $\geq .40$. For example, factor 1 consisted of all five variables dealing with coping with anxiety. The remaining factors tended to be less clear.

Occupational Values

Factor analysis of the Occupational Values variables yielded six factors. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analysis in Table 4).

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: Positive coping and ineffective or defensive responding.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. As only two of 18 tests were significant, these could be due to chance. Nonetheless, females tended to cope more effectively with aggression. Males placed greater value on following father's occupation. Females placed greater value on esthetics.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

There were few predictors of reading achievement for this sample of Chicago Black 10 year olds. These are listed in Tables 16a and 16b. Good readers coped more effectively with aggression with positive, not negative affect toward aggression. They did, however, express more negative affect than poorer readers toward task achievement. Good readers also had higher aptitude scores and were rated higher by their peers on the Behavior Rating Scale.

Math Achievement

Predictors of math achievement are listed in Tables 18a and 18b. As with reading, there were few significant predictors. Good math students tended to place greater value than poor students on altruism and management, and less on prestige and economic returns. Aptitude and peer ratings (BRS) were also predictive.

Grade Point Average

Predictors of GPA for Chicago Black 10 year olds are listed in Tables 20a and 20b. Students with higher grades coped more effectively with interpersonal relations with neutral, not negative affect. They reported less defensive behavior on the SAI, and were rated higher by their peers on the BRS. In work, these successful students placed greater value on success as opposed to creativity and variety. Aptitude was also a predictor of GPA. In addition, engaging problems related to anxiety with positive affect toward authority was also correlated with GPA.

PERCENTAGE OF VARIANCE

In order to assess the practical implications of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivation variables. The unique variance of both aptitude and coping/motivation variables was that increment variance obtained beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

Aptitude was an important predictor across all stages and criteria, uniquely accounting for 18.8% of the variance in reading, 9.0% in math, and 6.3% in GPA.

The coping/motivation factors were less powerful predictors of reading and math, but were more highly associated with GPA. They uniquely accounted for 6.5% of the variance in reading and 3.9% in math. In GPA the coping/motivation factors uniquely accounted for 20.2% of the variance, much more than aptitude.

What is more, some properties that reflected both aptitude and coping substantially increased the total variance explained in GPA (31%) and especially in reading (34%). This gave added weight to the explanatory power and the practical usefulness of the coping/motivation measures.

In sum, the coping/motivation factors were significant predictors across all criteria, but were relatively weak except for GPA. Test achievement for Chicago Black 10 year old students was not as contingent upon coping and motivation as on aptitude. However, these attitudinal qualities and coping skills were very important for achieving good grades. It appears that teachers were especially responsive to certain of these qualities.

Table 1

STAGE I

SENTENCE COMPLETION

CHICAGO BLACK - 10 Year Olds	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
39 Att. - Authority	.275	.094	.040	.010	.006	.043	-.248	.025	.611*	.144
40 Att. - Interpersonal Relations	.125	.028	-.011	.063	.018	.016	.102	-.045	.673*	-.379
41 Att. - Task Achievement	.003	.226	.068	-.023	.040	.010	.021	.150	.567*	.136
43 Aggression - Stance	-.035	.289	.234	.212	.161	.026	.079	.810*	.050	.049
44 Aggression - Engagement	-.016	.203	.183	.061	.172	.017	-.061	.877*	.051	-.012
45 Aggression - Coping Eff.	.030	.140	.122	.458*	.054	.039	.105	.800*	.040	.060
46 Aggression - Negative Aff.	-.096	-.169	-.142	-.860*	-.043	-.168	-.065	-.328	.010	-.058
47 Aggression - Pos. Affect	.096	.169	.142	.860*	.043	.168	.065	.328	-.010	.058
48 Authority - Stance	-.006	.774*	.128	-.034	.112	.175	.086	.152	.035	.308
49 Authority - Engagement	.023	.514*	-.160	.162	-.225	.210	-.206	.291	-.103	.296
50 Authority - Coping Eff.	.023	.857*	.172	.000	.196	.065	.053	.106	.081	.145
51 Authority - Negative	-.084	-.898*	-.092	-.142	.003	.043	-.001	-.096	-.074	.082
52 Authority - Neutral Aff.	.042	.881*	.081	.126	-.024	-.037	-.026	.080	.078	-.260
53 Authority - Pos. Affect	.188	.143	.051	.082	.091	-.032	.122	.077	-.011	.753*
54 Anxiety - Stance	.863*	-.000	-.003	-.014	.061	-.025	.023	-.033	.148	.209
55 Anxiety - Engagement	.505*	-.113	-.012	.081	-.085	.068	.200	-.070	.176	.415*
56 Anxiety - Coping Eff.	.906*	.110	.055	-.020	-.028	-.052	-.027	-.008	.064	.063
57 Anxiety - Negative Aff.	-.931*	-.035	-.032	-.063	.051	-.095	-.029	-.028	.038	.083
58 Anxiety - Neutral Aff.	.931*	.035	.032	.063	-.051	.095	.029	.028	-.038	-.083

STAGE I

SENTENCE COMPLETION

	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
CHICAGO BLACK - 10 Year Olds (continued)										
Item										
59 Interpersonal Relations - Stance	.087	.086	.171	.187	.050	.795*	-.044	-.047	.084	.108
60 IPR - Engagement	.078	.153	.291	.096	.119	.707*	.004	.123	.067	-.163
61 IPR - Coping Eff.	.056	.161	.781*	.180	.068	.311	-.162	.236	.136	.048
62 IPR - Negative Affect	-.035	-.125	-.942*	-.062	-.011	-.083	-.012	-.128	.015	-.009
63 IPR - Neutral Affect	.050	.142	.941*	.065	.046	.072	-.014	.131	-.073	.012
64 IPR - Positive Affect	-.107	-.133	-.134	-.029	-.239	.064	.183	-.041	.397	-.023
65 Task Achievement - Stance	-.032	-.005	-.076	-.124	.815*	.219	.022	.206	-.170	.033
66 Task Ach. - Engagement	.000	-.212	-.218	-.201	.558*	.451*	-.094	.169	-.229	.075
67 Task Ach. - Coping Eff.	-.075	.204	.159	.194	.873*	-.001	.002	.102	.098	.020
68 Task Ach. - Negative Aff.	.091	-.189	-.306	-.453*	-.593*	.216	.247	.113	-.202	.000
69 Task Ach. - Neutral Aff.	-.128	.076	.230	.195	.405*	-.084	-.798*	-.102	.089	-.085
70 Task Ach. - Pos. Affect	.076	.115	.032	.257	.121	-.136	.856*	.013	.110	.123

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 4

STAGE I

OCCUPATIONAL VALUES

CHICAGO BLACK - 10 Year Olds

Item		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14	Altruism	.058	.811*	.153	-.175	-.049	.211
15	Esthetics	.376	-.147	.103	-.096	-.525*	-.079
16	Independence	-.403*	-.183	.134	.088	.268	-.630*
17	Management	-.187	.676*	-.373	-.033	-.099	-.449*
18	Success	-.534*	-.013	.074	-.596*	-.115	.016
19	Self-Satisfaction	.653*	.064	.169	.205	.136	.015
20	Intellectual Stimulation	-.287	.114	-.019	.249	.249	.730*
21	Creativity	-.109	-.044	-.566*	.502*	.167	.306
22	Security	.736*	.140	.019	-.181	-.054	-.017
23	Prestige	-.153	-.464*	-.545*	-.179	-.389	.112
24	Economic Returns	-.240	-.691*	-.118	-.127	-.092	-.117
25	Surroundings	-.063	.007	.550*	.300	-.202	-.200
26	Associates	.111	.061	.733*	-.033	.000	.157
27	Variety	-.046	-.019	.150	.791*	-.093	.072
28	Follow Father	.210	-.068	.035	-.101	.831*	.014

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

CHICAGO BLACK - 10 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	.851*	.114
Item 2 Passive Coping	.872*	-.075
Item 3 Active Defensive	-.208	.845*
Item 4 Passive Defensive	.297	.787*

CHICAGO BLACK - 14 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	-.116	.737*
Item 2 Passive Coping	.054	.811*
Item 3 Active Defensive	.829*	-.135
Item 4 Passive Defensive	.865*	.062

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

CHICAGO BLACK - 10 Year Olds

Factor Abbreviation	Stage I Designation	NAME
C(SC)	1	Copes with Anxiety with Neutral, not Negative Affect
C(SC)	2	Copes with Authority with Neutral, not Negative Affect
C(SC)	3	Copes with Interpersonal Relations with Neutral, not Negative Affect
C(SC)	4	Copes with Aggression with Positive, not Negative Affect
C(SC)	5	Copes with Task Achievement with Neutral, not Negative Affect
C(SC)	6	Confronts and Engages Interpersonal Relations; Engages Task Achievement
C(SC)	7	Positive, not Neutral Affect toward Task Achievement
C(SC)	8	Copes with Aggression
C(SC)	9	Positive Attitude toward Authority. Interpersonal Relations, and Task Achievement
C(SC)	10	Engages Anxiety; Positive Affect toward Authority
OVAL	11	Values Self-Satisfaction and Security; does not value Independence or Success
OVAL	12	Values Altruism and Management; does not value Prestige or Economic Returns
OVAL	13	Values Surroundings and Associates; does not value Creativity and Prestige
OVAL	14	Values Creativity and Variety; does not value Success
OVAL	15	Values Following Father's Occupation; not Esthetics
OVAL	16	Values Intellectual Stimulation; does not value Independence or Management
C(SAI)	17	Copes effectively
C(SAI)	18	Shows defensive behavior

Table 12

SIGNIFICANT SEX DIFFERENCES*

CHICAGO BLACK - 10 Year Olds

			Probability Level
C(SC)8	F > M**	Copes effectively with Aggression via Stance and Engagement	$p < .04$
OVAL 15	F > M	Values Following Father's Occupation; doesn't value Esthetics	$p < .001$

---

* 2/18 (11%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

Table 16a.

Stage I

REGRESSION ANALYSIS

CHICAGO BLACK - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)4	13.52	.001	.39	.15	.15
RAVEN	21.32	.001	.58	.34	.19
BRS	16.36	.001	.68	.46	.12

Additional Explanatory Variables:

pr	p	r	p

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO BLACK - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

C(SC)4 = Copes effectively with Aggression with Positive not Negative Affect; with Negative Affect toward Task Achievement.

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

Table 18a.

Stage I

REGRESSION ANALYSIS

CHICAGO BLACK - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
OVAL 12	5.81	.018	.27	.07	.07
RAVEN	8.08	.006	.40	.16	.09
BRS	10.04	.002	.51	.26	.10

Additional Explanatory Variables:

pr	p	r	p

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO BLACK - 10 Year Olds CRITERION: Math Achievement

OVAL 12 = Values Altruism and Management; does not value Prestige and Economic Returns

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

Table 20a.

Stage I

REGRESSION ANALYSIS

CHICAGO BLACK - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)3	7.68	.007	.30	.09	.09
-C(SAI)18	5.70	.019	.39	.16	.06
-OVAL 14	8.42	.005	.49	.24	.09
RAVEN	6.59	.012	.55	.30	.06
BRS	54.25	.001	.78	.60	.30

Additional Explanatory Variables:

	pr	p	r	p
C(SC)10	.22	.056		

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO BLACK - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)3 = Copes effectively with Interpersonal Relations with Neutral, not Negative Affect
-C(SAI)18* = Does not show defensive behavior
-OVAL 14 = Does not value Creativity and Variety; values Success
RAVEN = Raven Progressive Matrices
BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)10 = Engages Anxiety; Positive Affect toward Authority

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* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

Stage I

PERCENT OF VARIANCE EXPLAINED

CHICAGO BLACK - 10 Year Olds

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	18.8%	9.0%	6.3%
Coping/Motivation (unique)	6.5%	3.9%	20.2%
Total	33.9%	16.1%	30.5%

Table 23

CORRELATIONS AMONG THE CRITERIA

CHICAGO black - 10 Year Olds

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.36		.34
GPA	.49		

CHICAGO-AREA BLACK 14 YEAR OLDS - RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Black Chicago-area 14 year old students from the 1965 (Stage I) sample. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. Sex differences are then described. Finally, the regression analyses are delineated, in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted in ten factors which accounted for a substantial percentage of the variance. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There are five general factors: coping with aggression, authority, anxiety, and task achievement. Most include neutral, not negative affect, in the respective behavioral area. Interpersonal relations splits into two factors. Factor 4 was copes effectively with neutral, not negative affect and factor 6 included the active, confronting and effective coping variables. Unit weights were constructed using those variables having a factor loading ($\geq .40$). For example, factor 1 consists of all five variables that concern coping with anxiety. Factors 7-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in Stage I. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see results in Table 4).

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This is a self-report measure of coping effectiveness. Two factors emerged: Ineffective or defensive responding, and positive coping.

Table 11 describes all of the factors for the Black Chicago 14 year olds. There are ten Sentence Completion factors, six Occupational Values factors, and two Social Attitudes Inventory factors.

SEX DIFFERENCES

Only seventeen percent of the factors showed sex differences. All of these were Occupational Values factors. Females more than males preferred altruism and associates, rather than economic returns. The girls more than the boys valued esthetics, while the boys preferred following their father's occupation. Valuing surroundings rather than success was also preferred by females more than males.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

The predictors of reading achievement are listed in Tables 16a and 16b. Good readers had high aptitude scores and aspired to high educational and occupational goals. Unlike most samples, peer ratings of coping effectiveness did not predict achievement. These students also reported not using defensive behavior; and they valued success, not surroundings.

Math Achievement

Math achievement predictors appear in Tables 18a and 18b. Students who did well in math had high aptitude scores and aspired to attain lofty educational goals. As with reading achievement, peer ratings did not predict math achievement. These students also indicated that they did not engage in defensive behavior. They showed a neutral or positive affect toward task achievement, and they valued success rather than surroundings. Another correlate of math scores was high occupational aspiration.

Grade Point Average

The predictors of students' grades are presented in Tables 20a and 20b. The Black students from this city near Chicago who received good grades had high educational goals and high aptitude scores. Peer ratings of coping did not predict grades. These students reported not responding in defensive ways; however, the Sentence Completion data indicated that these students did not cope well with authority and were hostile. Concerning future work, these students valued altruism and pleasant associates rather than economic returns. These students also preferred independence to self-satisfaction or security. Other correlates of grades were poor coping with interpersonal relations, and high occupational aspirations. This sample and the Austin Black sample were the only ones where poor coping predicted good grades from teachers. In both of these samples, objective achievement was related to good coping and positive achievement motivation. It appears that in the 1960's, the teachers of these Black children were not reinforcing good coping behavior and may even have been discouraging it. Such contradictory signals would tend to have a confusing, even a harassing effect, it would seem. Many of the Chicago area teachers and most of the Austin teachers of these Black children were, at that time, themselves Black. The phenomenon is not simply one of cross-racial prejudice. Black teachers as well as White, took a peculiarly disadvantageous approach to these children.

PERCENTAGE OF VARIANCE

Despite the relatively few predictors of the various criteria, a substantial amount of variance was explained: 59.7%, 44%, and 41.5% for reading, math and grade point average, respectively. Reading achievement was largely explained by aptitude which accounted for 22.1% of variance compared to 5.6% uniquely attributable to coping/motivation variables. Grades, on the other hand, were largely explained by coping/motivation (17.9%) compared to aptitude (4.5%). Math achievement was explained about equally by coping/motivation, uniquely (9.0%) and aptitude, uniquely (8.8%).

Table 1

STAGE I

SENTENCE COMPLETION

CHICAGO BLACK - 14 Year Olds

Item	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
39 Att. - Authority	-.138	-.100	.104	-.002	.082	-.037	.063	.165	.691*	.342
40 Att. - Interpersonal Relations	-.178	.247	.049	.036	.072	.089	.035	.043	.723*	-.120
41 Att. - Task Achievement	-.032	.206	.189	-.090	.070	-.047	-.061	.186	.276	.651*
43 Aggression - Stance	.132	.746*	-.018	.121	-.025	.251	.079	-.016	.332	.037
44 Aggression - Engagement	.065	.630*	-.252	.118	-.201	.259	.213	.103	.276	-.086
45 Aggression - Coping Eff.	.072	.896*	-.028	.053	-.024	.113	.053	-.019	.080	-.057
46 Aggression - Negative Aff.	-.056	-.911*	-.070	-.029	-.182	.127	.043	-.065	.147	-.031
47 Aggression - Pos. Affect	.056	.911*	.070	.029	.182	-.127	-.043	.065	-.147	.031
48 Authority - Stance	.038	-.002	-.018	.141	.306	.082	.052	.790*	.129	.074
49 Authority - Engagement	-.081	.150	-.047	-.161	.108	.141	-.061	.364	.087	-.615*
50 Authority - Coping Eff.	.053	.025	.019	.271	.433*	.147	.109	.729*	.118	.164
51 Authority - Negative Aff.	-.223	-.143	-.079	-.200	-.850*	-.026	-.000	-.189	-.056	.078
52 Authority - Neutral Aff.	.225	.109	.064	.209	.898*	.057	-.013	.044	.057	-.055
53 Authority - Pos. Affect	-.033	.155	.064	-.070	-.338	-.158	.071	.705*	-.009	-.106
54 Anxiety - Stance	.918*	-.020	.005	.045	.028	.022	.037	.007	-.124	.026
55 Anxiety - Engagement	.753*	-.051	.023	.000	.126	.057	.143	.037	-.068	.050
56 Anxiety - Coping Eff.	.926*	.055	-.034	.032	.062	.030	-.015	-.077	-.041	.014
57 Anxiety - Negative Aff.	-.909*	-.160	-.035	-.029	-.062	.036	.069	-.024	-.008	.045
58 Anxiety - Neutral Aff.	.909*	.160	.035	.029	.062	-.036	-.069	.024	.008	-.045

STAGE I

SENTENCE COMPLETION

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
	Loadings									
CHICAGO BLACK - 14 Year Olds (continued)										
59 Interpersonal Relations - Stance	-.019	.062	.168	.075	.018	.822*	-.039	.032	-.013	-.023
60 IPR - Engagement	.096	.131	.255	.298	.144	.674*	.007	-.056	.114	-.028
61 IPR - Coping Eff.	.038	.130	.126	.771*	.090	.486*	-.022	.088	.030	.076
62 IPR - Negative Affect	-.057	-.080	-.048	-.945*	-.147	-.047	.016	-.067	-.010	.006
63 IPR - Neutral Affect	.059	.090	.047	.951*	.160	.008	-.005	.050	.014	-.056
64 IPR - Positive Affect	-.019	-.092	.008	-.086	-.126	.364	-.105	.157	-.043	.474*
65 Task Achievement -Stance	-.061	.038	.896*	-.022	.164	.161	.013	.044	-.047	.088
66 Task Ach. - Engagement	-.095	.082	.747*	-.014	.070	.268	-.188	-.098	-.123	.090
67 Task Ach. - Coping Eff.	.113	-.033	.916*	.129	-.043	.032	.108	.061	.171	.022
68 Task Ach. - Negative Aff.	-.271	.206	-.608*	-.228	.145	.064	.250	-.070	-.375	.040
69 Task Ach. - Neutral Aff.	.147	-.188	.474*	.156	-.086	-.004	-.766*	-.030	.191	.004
70 Task Ach. - Pos. Affect	.128	.031	.039	.050	-.053	-.078	.900*	.141	.186	-.060

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*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 4

STAGE I

OCCUPATIONAL VALUES

CHICAGO BLACK - 14 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.137	.200	.642*	.379	.206	-.212
15 Esthetics	-.053	-.112	-.234	.411*	-.711*	.023
16 Independence	-.459*	-.555*	.092	.196	-.217	.014
17 Management	.095	-.149	-.134	.250	.775*	-.181
18 Success	-.237	.158	-.008	-.264	.078	-.742*
19 Self-Satisfaction	.160	.678*	.176	.073	-.255	-.027
20 Intellectual Stimulation	.750*	.155	.171	.261	.168	.024
21 Creativity	.644*	-.211	-.161	-.294	-.156	-.015
22 Security	-.347	.724*	.024	-.035	.058	.071
23 Prestige	-.288	-.282	-.670	.074	-.058	-.098
24 Economic Returns	-.540*	-.231	-.461*	-.068	.322	.234
25 Surroundings	-.099	.170	.116	-.178	-.085	.730*
26 Associates	-.149	-.243	.776*	.002	-.118	.256
27 Variety	.800*	-.065	.097	.137	.108	.122
28 Follow Father	-.110	.047	-.091	-.825*	.020	-.028

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

CHICAGO BLACK - 14 Year Olds

	COMMON FACTORS			
New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
	C(SC)	1		Copes with Anxiety
	C(SC)	2		Copes with Aggression
	C(SC)	3		Copes with Task Achievement
	C(SC)	4		Copes effectively with Interpersonal Relations with Neutral not Negative Affect
	C(SC)	5		Copes effectively with Authority with Neutral, not Negative Affect
	C(SC)	6		Copes effectively with Interpersonal Relations via Stance and Engagement
	C(SC)	7		Neutral or Positive Affect toward Task Achievement
	C(SC)	8		Copes effectively with Authority via Stance with Positive Affect
	C(SC)	9		Positive Attitude toward Authority and Interpersonal Relations
	C(SC)	10		Positive Attitude toward Task Achievement; does not Engage Authority; Positive Affect toward Interpersonal Relations.
	OVAL	11		Values Creativity, Variety, and Intellectual Stimulation; doesn't value Independence and Economic Returns.
	OVAL	12		Values Self-Satisfaction and Security; doesn't value Independence.
	OVAL	13		Values Altruism and Associates; doesn't value Economic Returns.
	OVAL	14		Values Esthetics; doesn't value Following Father's Occupation.
	OVAL	15		Values Management; doesn't value Esthetics
	OVAL	16		Values Surroundings; doesn't value Success
	C(SAI)	17		Shows defensive behavior
	C(SAI)	18		Copes effectively

Table 12

SIGNIFICANT SEX DIFFERENCES*

CHICAGO BLACK - 14 Year Olds

			Probability Level
OVAL 13	F > M**	Values Altruism and Associates; doesn't value Economic Returns	$p < .006$
OVAL 14	F > M	Values Esthetics; doesn't value Following Father's Occupation	$p < .01$
OVAL 16	F > M	Values Surroundings; doesn't value Success	$p < .03$

---

* = 3/18 (17%) of the significance tests were significant above chance. This indicates these results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** = F = Female M = Male

Table 16a.

Stage I

REGRESSION ANALYSIS

CHICAGO BLACK - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SAI)17	7.27	.009	.33	.11	.11
-OVAL 16	9.89	.003	.49	.24	.13
OCC ASP	7.80	.007	.58	.34	.09
ED ASP	3.60	.063	.61	.38	.04
RAVEN	29.63	.001	.77	.60	.22
BRS	1.68	NS			

Additional Explanatory Variables:

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO BLACK - 14 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

-C(SAI)17* = Does not show defensive behavior

-OVAL 16 = Values Success, not Surroundings

OCC ASP = Occupational Aspirations

ED ASP = Educational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavioral Rating Scales

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

CHICAGO BLACK - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SAI)17	9.46	.003	.37	.14	.14
C(SC)7	4.17	.046	.45	.20	.06
-OVAL 16	7.34	.009	.54	.29	.09
ED ASP	5.05	.029	.59	.35	.06
RAVEN	8.50	.005	.66	.44	.09
BRS	1.28	NS			

Additional Explanatory Variables:

	pr	p	r	p
OCC ASP	.29	.037		

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO BLACK - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:

-C(SAI)17* = Does not show defensive behavior

C(SC)7 = Neutral or positive Affect toward Task Achievement

-OVAL 16 = Values Success not Surroundings

ED ASP = Educational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

Additional Explanatory Variables:

OCC ASP = Occupational Aspirations

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

CHICAGO BLACK - 14 Year Olds   CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SAI)17	3.03	.087	.22	.05	.05
-C(SC)5	5.37	.024	.36	.13	.08
OVAL 13	6.07	.017	.47	.22	.08
-OVAL 12	5.16	.027	.53	.28	.07
ED ASP	7.37	.009	.61	.37	.09
RAVEN	4.09	.048	.64	.41	.05
BRS		NS			

Additional Explanatory Variables:

	pr	p	r	p
C(SC)4	-.25	.055		
OCC ASP	.29	.048		

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

CHICAGO BLACK - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

-C(SAI)17[*] = Does not show defensive behavior

-C(SC)5 = Hostile; does not cope well with Authority

OVAL 13 = Values Altruism and Associates, not Economic Returns

-OVAL 12 = Values Independence; does not value Self-satisfaction or Security

ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

Additional Explanatory Variables:

- C(SC)4 = Does not cope well with Interpersonal Relations; Negative, not Neutral Affect

OCC ASP = Occupational Aspiration

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[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

Stage I

PERCENT OF VARIANCE EXPLAINES

CHICAGO BLACK - 14 Year Olds

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	22.1%	8.8%	4.5%
Coping/Motivation (unique)	5.6%	9.0%	17.9%
Total	59.7%	44.0%	41.5%

Table 23

Stage I

CORRELATIONS AMONG THE CRITERIA

CHICAGO BLACK - 14 Year Olds

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.59		.74
GPA	.54		

AUSTIN 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Austin 10 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Austin students. Sex and socioeconomic status differences are described. Finally, the regression analyses are delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were five general factors corresponding to coping with aggression, authority, anxiety, interpersonal relations, and task achievement. Most included neutral, not negative affect, in the respective behavioral area. Unit weights were constructed using those variables having a factor loading ($\geq .40$). For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 6-10 also tended to have variable loadings grouped according to subaspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same pattern, with five major factors corresponding to each of the respective behavioral areas.

As these factors appeared to be yielding similar results, a comparison of the content of the first five factors was made (see Table 3). These factors were highly similar, with respective percentages of common variables across stages of 100%, 60%, 60%, 80%, and 60%. Many of the variables which did not load higher than .40 on both stages still showed similar direction. While the program RELATE could not be run due to different numbers of variables in the two stages, these factors were considered "identical," and appeared to indicate a stable construct system at age 10, that defined coping skills in the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that one of the six factors was "similar," having a cosine of .8 or better (interpreted similar to a correlation coefficient). Also, one factor was "identical" (cosine $\geq$ .9). Table 7 depicts the item comparison of these two factors across the two stages. The results of this comparison indicated some similarity in constructs across time for Austin 10 year old students.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: ineffective or defensive responding, and positive coping.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reported effective coping across four of the five behavioral areas. Coping with anxiety loaded in the same direction but with insufficient magnitude to be counted.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments which were administered to both samples. (The SAI was re-designed for the second sample.) If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, as the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the other sample, it received a new designation.

The first five Sentence Completion factors were very similar and are referred to as "identical" factors. These factors received a Roman numeral designation as indicated in Table 11.

The Occupational Values instrument was compared with the RELATE factor comparison method. One of these factors was called "similar" (RELATE value of .80 to .90) and received an alphabetic designation. For example, similar factor "A" consisted of original factors OVAL 16 in both samples. One factor was also considered "identical" (RELATE value $\geq$ .90); that is, OVAL 14 (Stage I) and OVAL 15 (Stage III). The unique factors in each sample were listed below these, having no comparable factor in the other sample.

In the Austin 10 year old sample, the first five Sentence Completion factors were identical across stages. There was one identical factor in the Occupational Values comparison and one similar factor. These results indicate that the factor structures in the two samples were similar in many respects, giving evidence that the coping and motivation patterns represented by these factors may remain stable in the Austin 10 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males tended to report themselves as coping more effectively with anxiety. On the other hand, females were more effective at coping with interpersonal relations. The boys reported that they tended to employ more defensive behavior than girls. On Occupational Values, girls more than boys valued intellectual stimulation and variety rather than economic returns. Females more than males preferred success and surroundings rather than creativity or prestige. The boys valued independence over esthetics, more than girls. Females preferred altruism and self-satisfaction rather than success, prestige or economic returns over males. Females, also valued more than males, pleasant associates and independence, not following father's occupation.

In Stage III, 47% of the factors showed sex differences. Males more than females coped effectively with authority without depressive affect. Females, however, coped better than males with aggression. There were several differences in occupational values. Females more than males valued altruism and intellectual stimulation rather than prestige or economic returns. Also, girls more than boys valued self-satisfaction, security and surroundings rather than creativity. Similarly, males preferred intellectual stimulation and creativity rather than independence. They also valued success rather than esthetics. Finally, females preferred variety rather than following father's occupation more than males.

Only one consistent sex difference occurred on a factor in both samples. In this case, males preferred success and independence rather than esthetics, more than females. One other sex difference occurred on a similar factor, suggesting males valued following father's occupation more than females.

SES DIFFERENCES

In Stage I, twenty-seven percent of the factors had differences due to socioeconomic class. The only coping factors that showed differences were self-report measures (SAI), indicating that lower class children reported both more coping and more defensive behavior than middle class children. On Occupational Values, lower class more than middle class children preferred surroundings rather than management. Middle class students, on the other hand, valued altruism and self-satisfaction rather than success, prestige or economic returns. Finally, lower class children more than middle class children preferred independence and associates to following father's occupation.

In Stage III, only twelve percent of the factors showed differences due to socioeconomic status. Lower-class children reported more coping behavior than middle-class children. Also, lower-class students preferred variety to following father's occupation.

Only one consistent difference emerged in the two samples; middle-class students preferred following father's occupation compared with lower-class students.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. Students who were good readers coped with aggression via stance and engagement, and with authority via stance. These students valued altruism and self-satisfaction rather than prestige, success or economic returns. Also, they preferred independence to esthetics. Management rather than pleasant surroundings was found valuable. Students with high reading scores had both high educational and high occupational aspirations. Their aptitude scores were high and their peers rated them as effective copers. Correlates of reading achievement were coping with interpersonal relations via stance and engagement, without positive affect, and reporting little defensive behavior.

In Stage III (Tables 17a and 17b) good readers coped effectively with task achievement and interpersonal relations. These students valued altruism and intellectual stimulation rather than prestige or economic returns. They preferred creativity rather than self-satisfaction, security or surroundings. These students valued independence rather than intellectual stimulation or creativity. High educational aspirations and aptitude scores were predictors, as were peer ratings on coping. Correlates of reading achievement included occupational aspirations, self-reports of good coping, and coping with anxiety.

Comparing the predictors across samples indicates that the coping and value predictors were unique to each sample. The consistent predictors and correlates of reading achievement were educational and occupational aspirations, aptitude, and peer ratings of coping.

Math Achievement

Predictors of math achievement (Stage I) appear in Tables 18a and 18b. No coping or values factors were predictors. Both educational and occupational aspirations were predictors, as was aptitude. The peer ratings did not contribute significantly to the prediction of math achievement.

In Stage III, there was only one coping factor, coping with task achievement, that was a significant predictor. Educational aspirations and aptitude were both predictors, as were the peer ratings.

Predictors that were common to both samples were educational aspirations and aptitude. In general, there were few variables that contributed to the prediction and explanation of math achievement.

Grade Point Average

The Stage I predictors of students' grades appear in Tables 20a and 20b. Those students who received good grades coped with aggression via stance and engagement and coped with authority via stance. They valued altruism and self-satisfaction rather than success, prestige or economic returns. They had both high educational and occupational aspirations. Their peers rated them as good copers and they achieved high aptitude scores. In addition to these predictors, not showing defensive behavior was correlated with grades.

Predictors of grades in the Stage III sample appear in Tables 21a and 21b. These students coped well with task achievement and interpersonal relations. Valuing altruism and intellectual stimulation rather than prestige or economic returns was characteristic of students who attained high grades. Also, variety rather than following father's occupation was a predictor. Aptitude and peer ratings of coping were among the factors that contributed significantly to grades. Educational aspirations was also correlated with students' grades.

Comparing across samples, there were no common coping or values predictors; these patterns were unique to each sample. Educational aspirations were related to grades in both samples. Aptitude, and peer ratings of coping, were also significant predictors of grade point averages.

PERCENTAGE OF VARIANCE

The percent of variance explained by all of these predictors appears in Table 22. In Stage I the total amount of variance explained was 34.2%, 19.6%, and 31.2% for reading achievement, math achievement, and GPA, respectively. Aptitude accounted for the least amount of variance in math (5.8%) and the most in GPA (18.2%). Coping/motivation variables contributed only 5.9% of the variance to grades, but 14% to reading achievement.

In Stage III, 38.1%, 19.2%, 23.3% of the reading achievement, math achievement, and grade point average, variance was accounted for, respectively, by all the variables. Aptitude accounted for about the same percentage of each criterion, ranging from 12.8% of GPA to 15.5% of reading achievement. Coping/motivation variables contributed a meager 2.6% to math achievement, 6.5% to grades and 14.8% to reading achievement.

In both samples, the least amount of criterion variance explained was in math achievement (approximately 20%). All the other predictions were more substantial. In all, a significant portion of achievement variance was explained by the combination of aptitude and coping/motivation.

Table 1

STAGE I

SENTENCE COMPLETION

		Loadings									
AUSTIN - 10 Year Olds		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Attitude - Authority	.091	.047	.028	.010	.016	-.027	-.084	.806*	-.016	.088
40	Att. - Interpersonal Relations	.011	-.007	.183	.058	-.035	.034	-.012	.741*	.072	-.143
41	Att. - Task Achievement	.063	.182	-.221	.091	.053	.010	.140	.598*	.027	.160
43	Aggression - Stance	.029	.604*	.092	-.013	.030	.037	.028	.056	.669*	-.087
44	Aggression - Engagement	.002	.487*	.048	-.103	-.007	-.020	-.046	.071	.669*	-.161
45	Aggression - Coping Eff.	.161	.915*	.113	.143	.053	-.020	.013	.096	.154	.038
46	Aggression - Neg. Affect	-.172	-.905*	-.136	-.187	-.052	.034	.002	-.038	-.008	-.032
47	Aggression - Pos. Affect	.172	.905*	.136	.187	.052	-.034	-.002	.038	.008	.032
48	Authority - Stance	.069	-.059	.112	.418*	.044	-.006	.074	.012	.596*	.412*
49	Authority - Engagement	.019	-.041	.022	.504*	-.058	.168	-.075	-.074	.093	.218
50	Authority - Coping Eff.	.136	.179	.220	.834*	.031	-.037	.041	.139	.214	.151
51	Authority - Neg. Affect	-.126	-.225	-.160	-.871*	-.015	.052	-.025	-.075	.136	.120
52	Authority - Neutral Aff.	.133	.220	.151	.864*	.002	-.050	.024	.065	-.137	-.199
53	Authority - Pos. Affect	-.055	.041	.069	.057	.105	-.022	.010	.080	.003	.635*
54	Anxiety - Stance	.916*	.126	.047	.053	.033	-.018	-.006	.049	.040	.044
55	Anxiety - Engagement	.774*	.116	-.042	-.095	-.015	-.061	-.020	.023	-.065	.068
56	Anxiety - Coping Eff.	.890*	.065	.082	.157	.078	.020	-.014	.038	.104	-.032
57	Anxiety - Neg. Affect	-.911*	-.065	-.079	-.125	-.100	.008	.021	-.026	.005	.087
58	Anxiety - Neutral Aff.	.911*	.065	.079	.125	.100	-.008	-.021	.026	-.005	-.087

STAGE I

SENTENCE COMPLETION

AUSTIN - 10 Year Olds (continued)		Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
59	Interpersonal Relations - Stance	.039	-.095	.126	.091	-.005	-.004	.803*	-.026	.133	.051
60	IPR - Engagement	-.041	-.008	.275	-.058	-.030	-.079	.781*	.093	.065	.008
61	IPR - Coping Eff.	.091	.134	.855*	.168	.060	.000	.302	.072	.111	.062
62	IPR - Negative Affect	-.099	-.154	-.945*	-.189	-.058	.044	-.024	.001	-.031	-.017
63	IPR - Neutral Affect	.091	.165	.937*	.186	.054	-.036	.066	-.006	.011	.011
64	IPR - Positive Affect	.101	-.125	.081	.031	.040	-.100	-.519*	.060	.248	.074
65	Task Achievement - Stance	.077	.081	.045	.009	.946*	.007	-.024	.023	.020	.036
66	Task Ach. - Engagement	.119	.016	.026	-.081	.829*	-.114	-.038	-.034	-.086	.175
67	Task Ach. - Coping Eff.	.101	.051	.072	.067	.946*	.054	-.012	.032	.103	-.104
68	Task Ach. - Neg. Affect	-.078	-.059	-.215	-.339	-.287	.367	-.115	-.117	-.322	.481*
69	Task Ach. - Neutral Aff.	.083	.065	.151	.162	.178	-.867*	.051	.051	.178	-.268
70	Task Ach. - Pos. Affect	-.026	-.023	.048	.192	.099	.854*	.071	.073	.145	-.213

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

	Loadings									
AUSTIN - 10 Year Olds	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	-.034	-.040	.069	.160	.082	.064	-.043	-.094	.508*	-.032
65 T.A. - Stance	.051	-.036	.916*	.010	.003	-.009	.019	.000	.058	.026
66 T.A. - Engagement	.060	.046	.909*	.030	.069	.012	.041	.030	.025	.064
67 T.A. - Aid/Advice	.045	.101	.872*	-.063	.069	.060	.137	-.013	.110	.096
68 T.A. - Coping Effect	.044	.012	.910*	-.040	.013	.050	.118	.021	.136	.132
69 T.A. - Hostile Affect	-.230	.287	-.412*	-.103	.072	.029	.136	.513*	.052	.092
70 T.A. - Depressive Aff.	.152	-.086	-.458*	-.045	-.218	.164	.079	-.206	.032	.242
71 T.A. - Neutral Aff.	.079	.266	.660*	.092	.057	-.115	-.179	-.300	-.119	-.340
72 T.A. - Positive Aff.	-.090	-.064	-.291	.022	.132	-.044	.126	.323	.216	.411*
73 Interpersonal Relations Attitude	.057	.026	.108	-.032	-.131	.115	-.014	.034	.648*	.028
74 I.R. - Stance	.868*	.026	-.005	.016	-.037	.010	.123	.027	-.005	.016
75 I.R. - Engagement	.911*	-.006	.040	.073	-.048	-.022	.143	.032	-.048	.094
76 I.R. - Aid/Advice	.914*	.009	.028	.038	-.049	-.020	.141	.044	.021	.094
77 I.R. - Coping Effect	.944*	-.025	.048	.161	.057	.029	-.047	-.049	.054	-.001
78 I.R. - Hostile Affect	-.642*	.016	-.105	-.263	.029	-.102	.251	.251	.096	-.110
79 I.R. - Depressive Aff.	-.257	-.040	.077	.130	-.445*	.197	-.107	-.065	-.399	.293
80 I.R. - Neutral Aff.	.719*	.011	.056	.145	.225	-.060	-.159	-.208	.170	-.015
81 I.R. - Positive Aff.	-.084	-.015	-.061	.063	.043	.253	.009	.188	-.178	-.411*

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

AUSTIN - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.092	-.022	.008	.252	-.055	.209	-.148	-.068	.647*	.127
83 Auth. - Stance	.165	.080	.017	.103	.419*	.603*	-.038	.155	-.059	.011
84 Auth. - Engagement	-.070	.119	-.023	-.016	.028	.806*	.063	.009	.268	-.016
85 Auth. - Aid/Advice	-.035	.149	.004	.119	.074	.794*	.086	-.024	.156	-.089
86 Auth. - Coping Eff.	.029	.115	.074	.110	.687*	.576*	.045	-.211	.099	.102
87 Auth. - Hostile Aff.	-.105	-.104	-.026	-.161	-.213	-.190	-.068	.587*	-.090	-.213
88 Auth. - Depress. Aff.	.044	-.028	-.126	.040	-.812*	-.058	.004	-.139	.097	.061
89 Auth. - Neutral Aff.	.053	.092	.119	.087	.812*	.182	.067	-.327	-.030	.122
90 Auth. - Positive Aff.	-.104	.075	.010	.007	-.011	.055	-.205	.053	.194	-.141
91 Anxiety - Attitude	-.122	.081	-.075	.131	-.067	-.068	-.140	.025	.316	-.471*
92 Anx. - Stance	-.028	.856*	.115	-.068	.013	.128	.004	.248	-.021	-.079
93 Anx. - Engagement	.064	.828*	.039	-.060	-.103	.138	.169	-.131	.019	.086
94 Anx. - Aid/Advice	.064	.827*	.030	-.098	-.137	.146	.147	-.137	.017	.085
95 Anx. - Coping Eff.	-.025	.879*	.107	.037	.019	.063	-.097	.169	.021	.08[illegible]
96 Anx. - Hostile Aff.	-.156	-.228	-.047	-.167	.016	.021	.108	-.011	-.003	-.713*
97 Anx. - Depressive Aff.	.127	-.731*	-.033	-.054	-.321	.047	.077	-.089	.011	.254
98 Anx. - Neutral Aff.	-.001	.700*	.009	.138	.274	-.115	-.075	-.226	.013	.168
99 Anx. - Positive Aff.	-.047	.169	.092	.011	.011	.121	-.109	.609*	-.040	.020

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

AUSTIN - 10 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	.020	.090	.140	-.020	.082	.133	.749*	-.075	-.145	.017
101 Agg. - Engagement	.037	.036	.038	.728*	-.082	.098	.575*	.007	-.101	-.015
102 Agg. - Aid/Advice	.111	.020	.053	.703*	-.046	.038	.590*	.013	-.049	-.039
103 Agg. - Coping Effect	.176	.020	.005	.926*	.026	.053	.074	-.022	.131	.005
104 Agg. - Hostile Aff.	-.139	.099	.013	-.870*	-.044	-.080	.229	.011	-.131	-.069
105 Agg. - Depressive Aff.	-.127	-.264	.007	.108	-.136	.242	-.265	.222	-.243	.183
106 Agg. - Neutral Aff.	.204	.009	-.023	.825*	.089	-.007	-.118	-.113	.219	-.015
107 Agg. - Positive Aff.	-.100	.037	.059	.037	.127	-.154	.008	.069	.161	.062

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR AUSTIN 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V		VI	
AUSTIN	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	4	3	1	4	6	5	3		
64 Task Achievement - Attitude												
65 TA - Stance									.95	.92		
66 TA - Engagement									.83	.91		
*67 TA - Aid/Advice										.87		
68 TA - Coping Eff.									.95	.91		
*69 TA - Hostile Aff.									(-.29)	-.41		
*70 TA - Depress. Aff.										-.46		
71 TA - Neutral Aff.									(.18)	.66		
72 TA - Positive Aff.												
73 Interpersonal Relations - Attitude												
74 IPR - Stance					(.13)	.87						
75 IPR - Engagement					(.27)	.91						
*76 IPR - Aid/Advice						.91						
77 IPR - Coping Eff.					.86	.94						
*78 IPR - Hostile Aff.					-.95	-.64						
*79 IPR - Depress. Aff.												
80 IPR - Neutral Aff.					.94	.72						
81 IPR - Positive Aff.												

Table 3
(continued)

AUSTIN	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	4	3	1	4	6	5	3
82 Authority - Attitude										
83 Auth. - Stance							.42	.60		
84 Auth. - Engagement							.50	.81		
*85 Auth. - Aid/Advice								.79		
86 Auth. - Coping Eff.							.83	.58		
*87 Auth. - Hostile Aff.							-.87	(-.19)		
*88 Auth. - Depress. Aff.										
89 Auth. - Neutral Aff.							.86	(.18)		
90 Auth. - Positive Aff.										
*91 Anxiety - Attitude										
92 Anx. - Stance	.92	.86								
93 Anx. - Engagement	.77	.83								
*94 Anx. - Aid/Advice		.83								
95 Anx. - Coping Eff.	.89	.88								
*96 Anx. - Hostile Aff.	-.91									
*97 Anx. - Depressive Aff.		-.73								
98 Anx. - Neutral Aff.	.91	.70								
*99 Anx. - Positive Aff.										

Table 3
(continued)

	I		II		III		IV		V	
AUSTIN	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	4	3	1	4	6	5	3
100 Aggression - Stance			.60	(-.02)						
101 Agg. - Engagement			.49	.73						
*102 Agg. - Aid/Advice				.70						
103 Agg. - Coping Eff.			.92	.93						
**104 Agg. - Hostile Aff.			-.91	-.87						
**105 Agg. - Depress. Aff.										
*106 Agg. - Neutral Aff.				.83						
107 Agg. - Positive Aff.			.91	(.04)						

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* This variable was only present in the Stage III instrument.

** In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable -- "Negative Affect."

Table 4

STAGE I

OCCUPATIONAL VALUES

AUSTIN - 10 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Items							
14	Altruism	.053	-.012	-.238	-.054	.746*	-.013
15	Esthetics	.016	..144	.001	-.860*	-.119	.073
16	Independent	-.040	.281	.045	.443*	-.138	.397*
17	Management	-.080	.123	-.823*	-.101	.137	.069
18	Success	-.063	.478*	-.248	.338	-.490*	-.040
19	Self-Satisfaction	-.045	.034	.100	.153	.646*	.102
20	Intellectual Stimulation	.806*	-.118	.057	-.004	.142	.108
21	Creativity	.179	-.731*	-.032	.086	-.179	-.166
22	Security	-.267	.327	.319	.329	.326	-.150
23	Prestige	-.254	-.471*	-.048	.002	-.589*	.249
24	Economic Returns	-.421*	-.092	.102	.030	-.635*	.076
25	Surroundings	.007	.414*	.574*	-.227	.066	.097
26	Associates	-.235	.054	.374	.108	.387	.434*
27	Variety	.835*	-.040	.009	-.033	.069	.009
28	Follow Father	-.178	-.050	.064	.091	.016	-.862*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

AUSTIN - 10 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.666*	.059	.067	-.049	.106	.136
15 Esthetics	-.130	-.199	-.221	.039	-.822*	.104
16 Independence	.103	-.131	-.714*	.196	-.023	.081
17 Management	.310	-.038	-.310	-.535*	.288	.079
18 Success	-.288	-.144	-.242	-.018	.590*	-.026
19 Self-Satisfaction	.251	.688*	.028	-.030	.139	.026
20 Intellectual Stimulation	.426*	-.103	.705*	.199	.036	.123
21 Creativity	.004	-.593*	.430*	-.294	-.017	-.010
22 Security	.067	.706*	.017	-.351	.050	.100
23 Prestige	-.771*	-.217	-.002	-.094	-.028	.198
24 Economic Returns	-.703*	.004	.018	-.020	.362	.063
25 Surroundings	-.044	.636*	.164	.275	-.162	-.135
26 Associates	.221	.038	-.243	.819*	.052	.087
27 Variety	.275	-.132	.330	.120	-.274	.438*
28 Follow Father	.100	-.049	.073	.012	.037	-.938*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR AUSTIN 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.53	-.55	.37	.50	-.13	.07
12	.29	.13	-.75	.43	-.05	-.40
13	-.35	.52	.40	.63	-.18	-.13
14	.05	.06	.08	.21	.97**	.02
15	.71	.63	.17	-.21	-.05	.17
16	-.10	.05	-.34	.28	-.05	.89*

Similar factors

* Identical factors

Table 7

ITEM COMPARISON FOR AUSTIN 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES
(Factor Loadings)

	VI		A									
AUSTIN	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	14	15	16	16								
14 Altruism												
15 Esthetics	-.86	-.82										
16 Independence	.44	(-.02)*	.40	(.08)								
17 Management												
18 Success	(.34)	.59										
19 Self-Satisfaction												
20 Intell. Stimula.												
21 Creativity												
22 Security												
23 Prestige												
24 Economic Returns												
25 Surroundings												
26 Associates			.43	(.09)								
27 Variety			(.01)	.44								
28 Follow Father			-.86	-.94								

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

AUSTIN - 10 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	.814*	-.010
2 Passive Coping	.845*	.063
3 Active Defensive	-.142	.822*
4 Passive Defensive	.216	.788*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

AUSTIN - 10 Year Olds	Factor Loading
Sub-Scores	Factor 17
37 Task Achievement	.546*
38 Authority	.692*
39 Aggression	.698*
40 Interpersonal Relations	.749*
41 Anxiety	.350

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

AUSTIN - 10 Year Olds

	COMMON FACTORS			
New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1*	2*	Copes with Anxiety
II	C(SC)	2	4	Copes with Aggression
III	C(SC)	3	1	Copes with Interpersonal Relations
IV	C(SC)	4	6	Copes with Authority
V	C(SC)	5	3	Copes with Task Achievement
VI	OVAL	14	15	Doesn't value Esthetics. (Values Independence and Success)**
A	OVAL	16	16	Doesn't value Following Father's Occupation. (Values Independence, Associates, and Variety.)
	UNIQUE FACTORS			
	C(SC)	6	-	Positive, not Neutral Affect toward Task Achievement
	C(SC)	7	-	Copes with Interpersonal Relations via Stance and Engagement without Positive Affect
	C(SC)	8	-	Positive Attitudes toward Authority, Interpersonal Relations, and Task Achievement.
	C(SC)	9	-	Copes with Aggression via Stance and Engagement, copes with Authority via Stance.
	C(SC)	10	-	Copes with Authority via Stance with Positive Affect and with Negative Affect toward Task Achievement.
	C(SC)	-	5	Copes effectively with Authority via Stance, with Neutral, not Depressive Affect. Also, lack of Depressive Affect toward Interpersonal Relations.
	C(SC)	-	7	Copes with Aggression via Stance, Engagement, and without seeking Advice.
	C(SC)	-	8	Hostile Affect toward Task Achievement and Authority; Positive Affect toward Anxiety.
	C(SC)	-	9	Positive Attitude toward Task Achievement, Interpersonal Relations, and Authority; lack of Depressive Affect toward Interpersonal Relations.
	C(SC)	-	10	Positive Affect toward Task Achievement; lack of Positive Attitude toward Authority and Anxiety; lack of Hostile Affect toward Anxiety.
	OVAL	11	-	Values Intellectual Stimulation and Variety; doesn't value Economic Returns.
	OVAL	12	-	Values Success and Surroundings; doesn't value Creativity and Prestige.
	OVAL	13	-	Values Surroundings; doesn't value Management.
	OVAL	15	-	Values Altruism and Self-Satisfaction; doesn't value Success, Prestige, and Economic Returns.
	OVAL	-	11	Values Altruism and Intellectual Stimulation; doesn't value Prestige and Economic Returns.
	OVAL	-	12	Values Self-Satisfaction, Security, and Surroundings; doesn't value Creativity.
	OVAL	-	13	Values Intellectual Stimulation and Creativity; doesn't value Independence.
	OVAL	-	14	Values Associates; doesn't value Management.

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* These numbers appear in the Factor Analysis Tables 1, 2, 4, 5.

** The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

AUSTIN - 10 Year Olds - Stage I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with Neutral, not Negative Affect.	$p < .003$
C(SC)3-III	F > M	Copes effectively with Interpersonal Relations with Neutral, not Negative Affect.	$p < .006$
OVAL 11	F > M	Values Intellectual Stimulation and Variety; doesn't value Economic Returns.	$p < .001$
OVAL 12	F > M	Values Success and Surroundings; doesn't value Creativity and Prestige.	$p < .02$
[i] OVAL 14-VI	F < M	Values Independence; doesn't value Esthetics.	$p < .001$
OVAL 15	F > M	Values Altruism, and Self-Satisfaction; doesn't value Success, Prestige, and Economic Returns.	$p < .001$
[s] OVAL 16-A	F > M	Values Independence and Associates; doesn't Follow Father.	$p < .001$
[n] C(SAI)18	F < M	Self-Report of Defensive Coping	$p < .032$

---

* 8/18 (44%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III).

[s] = The Sex difference on this factor is similar to one in the other sample.

[n] = No comparable instrument in the other sample.

Table 13

SIGNIFICANT SEX DIFFERENCES*

AUSTIN - 10 Year Olds - Stage III

			Probability Level
C(SC)4-II	F > M**	Copes effectively with Aggression	$p < .002$
C(SC)5	F < M	Copes effectively with Authority via Stance with Neutral Affect toward Authority, and without Depressive Affect toward Authority and Interpersonal Relations.	$p < .017$
C(SC)7	F > M	Copes with Aggression via Stance, Engagement, and without seeking Advice	$p < .052$
OVAL 11	F > M	Values Altruism and Intellectual Stimulation; doesn't value Prestige and Economic Returns.	$p < .028$
OVAL 12	F > M	Values Self-Satisfaction, Security, and Surroundings; doesn't value Creativity.	$p < .001$
OVAL 13	F < M	Values Intellectual Stimulation and Creativity; doesn't value Independence.	$p < .051$
[i]OVAL 15-VI	F < M	Values Success; doesn't value Esthetics.	$p < .001$
[s]OVAL 16-A	F > M	Values Variety; doesn't Follow Father.	$p < .001$

---

* 8/17 (47%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III).

[s] = The Sex difference on this factor is similar to one in the other sample.

Table 14

SIGNIFICANT SES DIFFERENCES*

AUSTIN - 10 Year Olds - Stage I

			Probability Level
OVAL 13	L > M**	Values Surroundings; doesn't value Management.	$p < .037$
OVAL 15	L < M	Values Altruism and Self-Satisfaction; doesn't value Success, Prestige, and Economic Returns.	$p < .002$
[s]OVAL 16-A	L > M	Values Independence and Associates; doesn't Follow Father.	$p < .023$
[n]C(SAI)17	L > M	Self-Report of Good Coping	$p < .014$
[n]C(SAI)18	L > M	Self-Report of Defensive Coping	$p < .001$

---

* 5/18 (27%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample.

[n] = No comparable instrument in the other sample.

Table 15

SIGNIFICANT SES DIFFERENCES*

AUSTIN - 10 Year Olds - Stage III

			Probability Level
[s]OVAL 16-A	L > M**	Values Variety; doesn't Follow Father.	$p < .001$
[n]C(SAI)17	L > M	Copes effectively	$p < .049$

---

* 2/17 (12%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample.

[n] = No comparable instrument in the other sample.

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Table 16a.

Stage I

REGRESSION ANALYSIS

AUSTIN - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9	5.56	.019	.15	.02	.02
OVAL 15	8.85	.003	.24	.06	.03
OVAL 14-VI	7.37	.007	.29	.09	.03
-OVAL 13	3.84	.051	.32	.10	.01
[i] ED ASP	27.95	.001	.44	.19	.09
[i] OCC ASP	6.29	.013	.46	.22	.02
[i] RAVEN	45.18	.001	.59	.34	.13
[i] BRS	11.74	.001	.61	.37	.03

Additional Explanatory Variables:

	pr	p	r	p
C(SC)7			.13	.05
[n]-C(SAI)18			-.16	.05

---

[i] = An identical predictor or explanatory factor across samples.

[n] = No comparable instrument in the other sample.

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

C(SC)9 = Copes with Aggression via Stance and Engagement; copes with Authority via Stance.
OVAL 15 = Values Altruism and Self-Satisfaction; doesn't value Success, Prestige, and Economic Returns.
OVAL 14-VI= Values Independence; doesn't value Esthetics.
-OVAL 13[*] = Values Management; doesn't value Surroundings.
[i] Ed Asp. = Educational Aspirations
[i] OCC ASP. = Occupational Aspirations
[i] RAVEN = Raven Progressive Matrices
[i] BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)7 = Copes with Interpersonal Relations via Stance and Engagement without Positive Affect.
[n] C(SAI)18 = Does not show defensive responding.

---

[i] = An identical predictor or explanatory factor across samples.

[n] = No comparable instrument in the other sample.

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

AUSTIN - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)3-V	15.60	.001	.28	.08	.08
C(SC)1-III	4.37	.038	.32	.10	.02
OVAL 11	5.01	.026	.36	.13	.02
-OVAL 12	2.91	.09	.37	.14	.01
-OVAL 13	6.34	.013	.41	.17	.03
[i] ED ASP	12.51	.001	.48	.23	.06
[i] RAVEN	43.56	.001	.62	.38	.16
[i] BRS	21.35	.001	.67	.45	.07

Additional Explanatory Variables:

	pr	p	r	p
C(SC)2-I			.15	.05
[n] C(SAI)17			.16	.05
[i] OCC ASP			.15	.05

---

[i] = An identical predictor or explanatory factor across samples.

[n] = No comparable instrument in the other sample.

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

C(SC)3-V = Copes with Task Achievement

C(SC)1-III = Copes with Interpersonal Relations

OVAL 11 = Values Altruism and Intellectual Stimulation; doesn't value Prestige and Economic Returns.

-OVAL 12 * = Values Creativity; doesn't value Self-Satisfaction, Security, and Surroundings.

-OVAL 13 = Values Independence; doesn't value Intellectual Stimulation and Creativity.

[i] ED ASP = Educational Aspirations

[i] RAVEN = Raven Progressive Matrices

[i] BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)2-I = Copes with Anxiety

[n]C(SAI)17 = Shows good coping

[i]OCC ASP = Occupational Aspirations

---

[i] = An identical predictor or explanatory factor across samples.

[n] = No comparable instrument in the other sample.

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

AUSTIN - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	P	Multiple R	R^2	R^2 Change
[1] ED ASP	32.97	.001	.35	.12	.12
OCC ASP	5.08	.025	.37	.14	.02
[1] RAVEN	17.19	.001	.44	.20	.06
BRS	.09	.765	.44	.20	.00

Additional Explanatory Variables:

---

[1] = An identical predictor or explanatory factor across samples.

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

[i] ED ASP = Educational Aspiration

OCC ASP = Occupational Aspiration

[i] RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

---

[i] = An identical predictor or explanatory factor across samples.

Table 19a.

Stage III

REGRESSION ANALYSIS

AUSTIN - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)3-V	4.75	.031	.160	.026	.026
[i]ED ASP	4.11	.004	.218	.048	.022
[i]RAVEN	31.91	.001	.439	.192	.145
[i]BRS	14.65	.001	.504	.254	.062

No Additional Variables:

---

[i] = An identical predictor or explanatory factor across samples.

Table 19b.

Stage III

REGRESSION ANALYSIS

AUSTIN - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

C(SC)3-V = Copes with Task Achievement

[1]ED ASP = Educational Aspiration

[1]RAVEN = Raven Progressive Matrices

[1]BRS = Behavior Rating Scales

---

[1] = An identical predictor or explanatory factor across samples.

Table 20a.

Stage I

REGRESSION ANALYSIS

AUSTIN - 10 Year Olds — CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9	6.41	.012	.16	.03	.03
OVAL 15	11.40	.001	.26	.07	.04
[1]ED ASP	10.80	.001	.33	.11	.04
OCC ASP	5.36	.021	.36	.13	.02
[1]RAVEN	62.74	.001	.56	.31	.18
[1]BRS	112.72	.001	.73	.53	.22

Additional Explanatory Variables:

	pr	p	r	p
[n]-C(SAI)18			-.17	.05

---

[1] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)9 = Copes with Aggression via Stance and Engagement; copes with Authority via Stance.

OVAL 15 = Values Altruism and Self-Satisfaction; doesn't value Success, Prestige, and Economic Returns.

^{i}ED ASP = Educational Aspiration

OCC ASP = Occupational Aspiration

^{i}RAVEN = Raven Progressive Matrices

^{i}BRS = Behavior Rating Scales

Additional Explanatory Variables:

^{n}-C(SAI)18*= Does not show Defensive Behavior

---

^{i} = An identical predictor or explanatory factor across samples

^{n} = No comparable instrument in the other sample

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

AUSTIN - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)3-V	7.45	.007	.199	.040	.040
C(SC)1-III	5.29	.023	.259	.067	.028
OVAL 11	3.17	.077	.289	.084	.016
OVAL 16-A	4.35	.038	.325	.106	.022
[1]RAVEN	29.26	.001	.483	.233	.128
[1]BRS	29.88	.001	.587	.345	.112

(Reconsidered)
Additional Explanatory Variables:

	pr	p	r	p
[1]ED ASP			.14	.05

---

[1] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)3-V = Copes with Task Achievement

C(SC)1-III = Copes with Interpersonal Relations

OVAL 11 = Values Altruism and Intellectual Stimulation; doesn't value Prestige and Economic Returns.

OVAL 16-A = Values Variety; doesn't value Following Father's Occupation.

[1]RAVEN = Raven Progressive Matrices

[1]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[1]ED ASP = Educational Aspiration

---

[1] = An identical predictor or explanatory factor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

AUSTIN - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	12.6%	5.8%	18.2%
Coping/Motivation (unique)	14.0%	10.4%	5.9%
Total	34.2%	19.6%	31.2%

AUSTIN - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	15.5%	14.5%	12.8%
Coping/Motivation (unique)	14.8%	2.6%	6.5%
Total	38.1%	19.2%	23.3%

Table 23

CORRELATIONS AMONG THE CRITERIA

AUSTIN - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.48		.30
GPA	.63		

AUSTIN - 10 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.47		.46
GPA	.59		

AUSTIN 14 YEAR OLDS - RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Austin 14 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, Views of Life, and the Social Attitudes Inventory. The factor comparison findings are presented, indicating the degree of correspondence between the two samples of Austin students. Next, sex and socioeconomic status differences are described. Finally, the regression analyses are delineated, in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted, for both Stages I and III, in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There are five general factors: coping with aggression, authority, anxiety, interpersonal relations, and task achievement. All include neutral, not negative affect in the respective behavioral area, except for task achievement, in which affect variables loaded on separate factors. Unit weights were constructed using those variables having a factor loading ($\geq$ .40). For example, factor 1 consists of all five variables that define coping with anxiety. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same tendencies, with five major coping factors corresponding to five behavioral areas.

As these factors appeared to be yielding similar results, a comparis of the first five primary factors was examined (see Table 3). These factors are highly similar, with respective percentages of common variables across stages of 80%, 60%, 100%, 60%, and 75%. Some of the variables which did not load higher than .40 on both stages nonetheless were quite similar. While the program RELATE could not be run due to slightly different numbers of variables in the two stages, these five factors are considered "identical," and appear to indicate a stable "Austin" construct system at age 14, that defines coping skills in each of the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\geq$ .40 were used to construct a unit weighted score for each factor (see results in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that one of the six factors was "identical," having a cosine of .9 or better (interpreted similar to a correlation coefficient) and four more were "similar" (cosine ≥ .8). Table 7 depicts that item comparison of these four factors across the two stages. The results of this comparison indicated strong similarity in constructs across time for Austin 14 year old students.

Views of Life

The Views of Life instrument was used only in Stage III. The factor analysis of these variables yielded eight factors and is depicted in Table 8.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This is a self-report measure of coping effectiveness. Two factors emerged: ineffective or defensive responding, and positive coping.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor reported effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made between the Sentence Completion and Occupational Values instruments which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 describes the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of the factor content which was described earlier. The five primary factors are very similar and are referred to as "identical" factors. These factors received a Roman numeral designation as indicated in Table 11.

The Occupational Values instrument was compared with the RELATE factor comparison method. Four of these factors are called "similar" (RELATE value of .80 to .90) and they received an alphabetic designation.

For example, similar factor "A" consisted of original factors OVAL 12 in Stage I and OVAL 13 in Stage III. New factor "VI" designated the "identical" OVAL factor. The unique factors in each sample are listed below these.

In the Austin 14 year old sample, the first five Sentence Completi factors were identical across stages. There was one identical and four similar factors in the Occupational Values comparison. These results indicated that the factor structures in the two samples were similar in most respects. The coping and motivation dimensions represented by these factors remained stable across time in the Austin 14 year old population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males tended to cope more effectively with anxiety and task achievement. Females, however, had more positive attitudes toward task achievement, as well as toward authority and interpersonal relations. Paradoxically, females expressed both more positive and more negative affect toward task achievement. They were more emotional about achievement, overall, it might be said. In a work setting, males placed greater value on success, prestige, economic returns, security, and following father's occupation. Females, on the other hand, more highly valued altruism, self-satisfaction, intellectual stimulation, variety, and esthetics.

In Stage III, males coped more effectively with anxiety and aggression, but females were better copers in the areas of interpersonal relations and authority. Males had more positive attitudes toward task achievement and less positive affect toward aggresion. Females reported better overall coping on the self-report (SAI) measure. In work, male more highly valued success, prestige, economic returns, and following father's occupation, whereas females placed greater value on altruism, self-satisfaction, and associates.

There were two factors which showed similar sex differences across stages. Males coped more effectively with anxiety in both samples. Identical OVAL factor VI showed that in Austin, 14 year old males consistently placed more value on extrinsic concerns of success, prestige and economic returns, whereas females more highly valued work in which they could help others and find self-satisfaction.

SES DIFFERENCES

Stage I social class differences are listed in Table 14. Although middle-class students coped more effectively with interpersonal relations the lower class reported less defensive behavior on the SAI. In work, middle-class students placed greater value on management and following father's occupation, whereas the lower class more highly valued security, surroundings, associates, intellectual stimulation, and variety.

In Stage III (Table 15), only three of twenty-five tests showed social class differences, a number that could be due to chance. Lower-class students coped more effectively with aggression and more highly valued security and surroundings in a work setting. The middle class, on the other hand, placed greater value on management and expressed a more internal locus of control, as well as a greater preference for emotional expressivity.

There was one social class difference common to both stages. Middle-class students placed greater value on management, while the lower class more highly valued security and pleasant surroundings. In general, SES differences were at a minimum in these Austin 14 year old samples.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. Good readers tended to cope well with aggression. They reported less defensive behavior on the SAI and were rated higher by their peers on the Behavior Rating Scale. Good readers also expressed more positive, not neutral, affect toward task achievement than poorer readers. In work, these students valued management and independence, but not security, surroundings, or associates. They had high aptitude scores and high aspirations for both career and education.

In Stage III (Tables 17a and 17b, good readers were able to cope with interpersonal relations and task achievement. The apparent contradiction between C(SC)7 and C(SC)4 can best be explained through the stance variable. C(SC)7 includes stance and is a negative predictor, while C(SC)4 does not include stance and predicts in a positive direction. As scoring for Stance was such that a higher score could include aggressive actions, C(SC)4 can best be described as coping with aggression non-belligerently, a characteristic of good readers. In addition to the Sentence Completion predictors, good reading was also associated with self-report of good coping, and higher ratings by peers on the Behavior Rating Scale.

In addition, good readers in Stage III viewed life as complex and expressed a more internal locus of control, as well as a greater preference for emotional expressivity. In a work setting, these students valued altruism, self-satisfaction, associates, and independence, but not success, prestige, economic returns, or management. Finally, better readers had higher aptitude scores and higher educational and occupational aspirations than poorer students.

Across the two stages, good readers consistently had higher aptitude scores and higher aspirations. They were also rated higher by their peers on the Behavior Rating Scale. Finally, coping with aggression was a significant predictor of reading achievement in both samples of Austin 14 year olds.

Math Achievement

Predictors of math achievement in Stage I are listed in Tables 18a and 18b. Those students who did well in math gended to cope well with aggression, non-belligerently (see reading achievement, Stage III), and they expressed positive, not neutral affect toward task achievement. These students also reported less defensive behavior on the SAI and were rated higher by their peers on the Behavior Rating Scale. They also placed more value on independence in a work setting. In addition, better students had higher aptitude scores and higher aspirations for both career and education.

Stage III predictors are listed in Tables 19a and 19b. Good math students did not cope with aggression by taking a possibly hostile stance (see reading achievement, Stage III). Good math achievers copes skillfully with authority in their actions [C(SC)6] but with a good deal of hostile feeling [C(SC)5]. Peer ratings of coping skill positively predicted math achievement in this sample. Good math student also viewed life as complex, expressed a more internal locus of control, and preferred emotional expressivity. They also gained satisfaction from actual accomplishments, rather than ideating or day dreaming. Good math students valued following their father's occupation. In addition, they had high aptitude scores and high aspirations for both career and education.

A comparison of the two stages shows that students who were good in math consistently had high aptitude scores and high educational and occupational aspirations. Peer ratings were also a significant predicto in both stages.

Grade Point Average

Predictors of GPA for Stage I are listed in Tables 20a and 20b. Students who were given high grades by teachers coped well with aggressio but not with anxiety. They were also highly rated by their peers on the Behavior Rating Scale. They expressed positive attitudes toward authorit interpersonal relations, and task achievement, as well as positive, not neutral, affect toward task achievement. In a work setting, students with good GPA tended to value altruism, self-satisfaction, and esthetics. They placed less value on success, prestige, economic returns, security, and following father's occupation. In addition, successful students had high aptitude scores and high aspirations for both career and education.

In Stage III (Tables 21a and 21b), students with high GPA copes effectively with authority, aggression, interpersonal relations, and task achievement. (See reading achievement, Stage III, for interpretation of the suppression effect involving C(SC)7. C(SC)5 was also a negative predictor in this equation due to a suppression effect. Actually, the simple correlation between C(SC)5 [non-hostile coping with authority] and GPA was positive. It is not clear, however, what this variable has in common with others that would account for this suppression.)

Further evidence of the importance of coping in this sample is that self-report of good coping on the SAI and high peer rating of the BRS also predicted high GPA. Students with high GPA in Stage III had an internal locus of control and believed in freely expressing and accepting emotions. They viewed life as complex and tended to gain satisfaction from actual accomplishments, rather than ideation or dreaming. These students expressed a preference, however, for delayed action, or inaction, in the face of impending situations. As to future work setting, students who got high grades valued success, but not esthetics or creativity. Finally, high aptitude socres and high educational and occupational aspirations also predicted GPA in Stage III.

A comparison across stages indicates that Junior High School teachers consistently gave higher grades to students who coped with aggression in a non-belligerent manner. They also rewarded students who did not value an esthetic type of occupation. Student aptitude, educational aspiration and occupational aspiration also predicted GPA in both samples. Finally, students who got good grades consistently received high peer ratings on the Behavior Rating Scale.

Coping with aggression seems to have been especially important for Austin 14 year olds; it predicted all achievement criteria (except Stage III math) in both samples. Aptitude, and educational and occupational aspirations, also predicted all criteria in both stages. The Behavior Rating Scale was the final consistent predictor. It was especially powerful in accounting for GPA variance, a pattern noted elsewhere which suggests that classroom behavior is more important for grades than skill-achievement, alone.

PERCENTAGE OF VARIANCE

It is also important to consider the percent of variance accounted for by the aptitude and coping/motivation variables, respectively, in accounting for success on the criterion measures. These are listed in Table 22. Aptitude was an important predictor across all stages and criteria, expecially in Stage I where it accounted for 19% of the variance in reading, 29.6% in math, and 11.9% in GPA. In Stage III, aptitude accounted for 6.8%, 10.7%, and 2.3% in the respective criteria.

In contrast, the coping/motivation variables were more important predictors in Stage III than in Stage I. In Stage I, they uniquely accounted for 5.8% of the variance in reading, 5.4% in math, and 9.5% in GPA, all less than the unique contributions of aptitude. In Stage III, however, the coping/motivation variables uniquely accounted for more of the variance than aptitude on all criteria: 13.2% in reading, 13.0% in math, and a very substantial 24.3% in GPA. These figures were much larger than the unique contributions of aptitude to GPA. In sum, the coping/motivation factors were important predictors across all criteria and stages, especially in Stage III. These findings indicate that success in school for Austin 14 year old students was contingent upon coping skills and attitudes in many aspects of life. Aptitude was also important, of course, especially in Stage I.

Table 1

STAGE I

SENTENCE COMPLETION

AUSTIN - 14 Year Olds		Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Attitude - Authority	.014	.023	.013	.092	.076	.793*	-.014	.162	-.057	.033
40	Att. - Interpersonal Relations	-.033	.006	.029	.024	.028	.745*	.113	-.101	.079	-.043
41	Att. - Task Achievement	.009	.103	.203	.144	.071	.590*	.011	-.135	.037	.211
43	Aggression - Stance	.056	.828*	.098	.077	.079	-.052	.076	.060	.076	.266
44	Aggression - Engagement	-.081	.706*	.002	-.009	.076	-.043	.093	.133	.057	.435*
45	Aggression - Coping Eff.	.121	.934*	.076	.120	.069	.059	-.014	-.056	.024	-.084
46	Aggression - Neg. Affect	-.137	-.881*	-.088	-.155	-.020	-.084	.025	.090	.001	.255
47	Aggression - Pos. Affect	.137	.881*	.088	.155	.020	.084	-.025	-.090	-.001	-.255
48	Authority - Stance	.001	.044	.170	.620*	.204	.171	.205	.119	.344	.017
49	Authority - Engagement	.087	-.073	.112	.422*	.128	.128	-.167	.088	.339	-.068
50	Authority - Coping Eff.	.078	.194	.160	.870*	.116	.158	.048	-.050	.182	.050
51	Authority - Neg. Affect	-.166	-.177	-.140	-.870*	-.017	.012	.083	.129	.112	-.011
52	Authority - Neutral Aff.	.162	.166	.135	.866*	.024	-.014	-.085	-.125	-.188	.011
53	Authority - Pos. Affect	.055	.121	.063	.064	-.075	.016	.018	-.043	.801*	.000
54	Anxiety - Stance	.916*	.077	.079	.061	.033	.068	-.006	-.035	.010	.053
55	Anxiety - Engagement	.751*	.029	.030	-.006	.091	.068	-.049	.058	-.049	.117
56	Anxiety - Coping Eff.	.906*	.060	.026	.082	-.014	.036	.008	-.041	.052	.007
57	Anxiety - Neg. Affect	-.907*	-.078	-.035	-.123	.051	.102	-.000	.055	-.038	.047
58	Anxiety - Neutral Aff.	.907*	.078	.035	.123	-.051	-.102	.000	-.055	.038	-.047

STAGE I

SENTENCE COMPLETION

					Loadings					
AUSTIN - 14 Year Olds (continued)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	.013	.111	.674*	-.016	.009	-.032	.089	-.008	.246	.131
60 IPR - Engagement	.040	.057	.600*	-.240	-.005	.197	-.151	.038	.268	-.145
61 IPR - Coping Eff.	.051	.103	.914*	.245	.084	.092	.041	-.021	.008	.027
62 IPR - Negative Affect	-.091	-.042	-.834*	-.350	-.104	-.032	-.021	.079	.176	.010
63 IPR - Neutral Affect	.083	.047	.835*	.348	.105	.021	.027	-.075	-.174	-.069
64 IPR - Positive Affect	.106	-.071	.002	.033	-.009	.139	-.080	-.049	-.024	.756*
65 Task Achievement - Stance	.006	.102	.079	.103	.939*	.119	.042	-.103	.005	.006
66 Task Ach. - Engagement	.002	.028	.072	.112	.888*	-.017	-.200	.088	-.033	.022
67 Task Ach. - Coping Eff.	.013	.114	.111	.111	.898*	.098	.144	-.224	-.020	-.026
68 Task Ach. - Neg. Affect	-.119	-.075	-.133	-.157	-.196	-.073	-.028	.914*	-.014	-.026
69 Task Ach. - Neutral Aff.	.099	-.000	.029	.128	.123	-.036	-.746*	-.599*	.008	.060
70 Task Ach. - Pos. Affect	-.010	.072	.090	-.009	.034	.115	.951*	-.127	.003	-.050

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

AUSTIN - 14 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
64 Task Achievement-Attitude	.058	.020	.266	.175	-.053	.204	.095	-.115	-.039	.558*
65 T.A. - Stance	.140	.046	.909*	.030	.091	.015	.040	.070	-.057	.051
66 T.A. - Engagement	.142	-.011	.912*	.034	.062	.033	-.003	-.008	-.134	.049
67 T.A. - Aid/Advice	.071	.012	.859*	.067	.032	.043	-.040	-.121	-.165	-.012
68 T.A. - Coping Effect	.141	.056	.923*	.069	.083	-.002	.045	.008	.067	.060
69 T.A. - Hostile Affect	-.037	-.005	-.321	.157	.093	-.125	-.041	-.153	.418*	.372
70 T.A. - Depressive Aff.	-.080	-.188	-.302	.272	.047	-.027	-.092	-.033	.458*	-.192
71 T.A. - Neutral Aff.	.044	.099	.439*	-.206	.020	.083	-.080	.080	-.769*	-.063
72 T.A. - Positive Aff.	.045	.033	-.153	-.082	-.108	.003	.293	.041	.491*	-.034
73 Interpersonal Relations Attitude	.219	.056	.163	-.071	.039	.091	-.111	.261	.297	.134
74 I.R. - Stance	.868*	.037	.066	.049	-.046	.123	-.079	-.040	-.106	.032
75 I.R. - Engagement	.923*	.008	.091	.040	-.089	.113	-.049	.081	.012	.033
76 I.R. - Aid/Advice	.912*	.006	.103	.059	-.088	.118	-.064	.063	.012	.034
77 I.R. - Coping Effect	.901*	.112	.207	.015	.219	.042	-.008	-.011	.054	-.054
78 I.R. - Hostile Affect	-.479*	-.101	-.243	-.046	-.490*	.143	-.015	-.080	-.202	.106
79 I.R. - Depressive Aff.	-.308	-.112	.168	.055	-.301	.081	-.104	.404*	.150	.061
80 I.R. - Neutral Aff.	.578*	.145	.119	.012	.588*	-.139	.089	-.212	.097	-.133
81 I.R. - Positive Aff.	.006	.057	-.183	-.068	-.050	-.258	-.144	.345	-.195	.086

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

AUSTIN - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.333	-.046	.334	.077	.083	.234	-.140	.223	.109	.309
83 Auth. - Stance	.190	.064	.022	-.048	.294	.615*	-.012	-.289	-.198	.053
84 Auth. - Engagement	.095	-.015	.061	.006	.142	.842*	-.057	.134	.038	.000
85 Auth. - Aid/Advice	.110	-.023	.042	.027	.134	.869*	.063	.042	.064	-.075
86 Auth. - Coping Eff.	.091	.047	.063	.076	.753*	.545*	-.062	-.046	-.068	.078
87 Auth. - Hostile Aff.	.060	.003	-.156	-.071	-.732*	-.192	.011	-.115	-.051	-.186
88 Auth. - Depress. Aff.	-.007	-.065	.148	.033	-.335	-.044	-.082	.327	.191	.286
89 Auth. - Neutral Aff.	-.038	.036	.041	.042	.875*	.217	.063	-.067	.097	-.037
90 Auth. - Positive Aff.	-.065	.033	-.014	-.007	.040	-.087	.094	-.296	.073	.054
91 Anxiety - Attitude	-.037	.106	.053	.345	-.091	-.050	-.178	-.090	-.185	.316
92 Anx. - Stance	.063	.822*	.017	-.061	-.064	.050	.002	-.393	-.067	.100
93 Anx. - Engagement	.049	.861*	-.023	.009	.005	-.022	.098	.258	.038	.122
94 Anx. - Aid/Advice	.043	.851*	-.029	-.001	.008	-.013	.101	.261	.042	.127
95 Anx. - Coping Eff.	.095	.863*	.079	-.025	-.077	.096	-.064	-.288	.002	-.076
96 Anx. - Hostile Aff.	-.055	-.140	-.200	-.016	.077	-.115	.172	.116	-.438*	.173
97 Anx. - Depressive Aff.	.001	-.712*	-.020	.027	-.152	.062	-.056	.351	.138	.091
98 Anx. - Neutral Aff.	.024	.753*	.109	.086	.232	-.061	.053	.061	.097	-.325
99 Anx. - Positive Aff.	.011	.076	.042	-.160	-.188	.096	-.145	-.745*	.019	.204

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

AUSTIN - 14 Year Olds

	Loadings									
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.123	.210	-.006	-.220	.003	.043	.739*	-.097	-.077	.021
101 Agg. - Engagement	-.036	.016	.027	.414*	.044	-.044	.829*	.133	.055	.062
102 Agg. - Aid/Advice	.075	.018	.029	.408*	.058	-.018	.815*	.097	.066	.090
103 Agg. - Coping Effect	.036	-.027	.025	.895*	.029	.049	.292	.055	.051	.002
104 Agg. - Hostile Aff.	-.101	.030	-.052	-.916*	-.031	-.027	.050	-.153	-.078	-.026
105 Agg. - Depressive Aff.	.043	-.090	-.074	.003	-.110	-.027	-.325	.407*	-.047	.327
106 Agg. - Neutral Aff.	.074	.004	.089	.891*	.114	.003	.135	-.035	.088	-.034
107 Agg. - Positive Aff.	.040	.050	-.006	.189	-.180	.210	-.181	-.016	.076	-.550*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR AUSTIN 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION
(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	4	3	1	4	6	5	3
64 Task Achievement - Attitude										
65 TA - Stance									.94	.91
66 TA - Engagement									.89	.91
*67 TA - Aid/Advice										.86
68 TA - Coping									.90	.92
**69 TA - Hostile										
**70 TA - Depressive										
71 TA - Neutral									(.12)	.44
72 TA - Positive										
73 Interpersonal Relations - Attitude										
74 IPR - Stance					.67	.87				
75 IPR - Engagement					.60	.92				
*76 IPR - Aid/Advice						.91				
77 IPR - Coping					.91	.91				
**78 IPR - Hostile					-.83	-.48				
**79 IPR - Depressive										
80 IPR - Neutral					.84	.58				
81 IPR - Positive										

Table 3
(continued)

ITEM COMPARISON FOR AUSTIN 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	4	2	1	4	6	5	3
82 Authority - Attitude										
83 Auth. - Stance							.62	.62		
84 Auth. - Engagement							.42	.84		
*85 Auth. - Aid/Advice								.87		
86 Auth. - Coping							.87	.54		
*87 Auth. - Hostile							-.87	(-.19)		
*88 Auth. - Depressive										
89 Auth. - Neutral							.86	(.22)		
90 Auth. - Positive										
*91 Anxiety - Attitude										
92 Anxiety - Stance	.92	.82								
93 Anxiety - Engagement	.75	.86								
*94 Anxiety - Aid/Advice		.85								
95 Anxiety - Coping	.91	.86								
*96 Anxiety - Hostile	-.91	(-.14)								
*97 Anxiety - Depressive		-.71								
98 Anxiety - Neutral	.91	.75								
*99 Anxiety - Positive										

Table 3

(continued)

ITEM COMPARISON FOR AUSTIN 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	2	2	4	2	1	4	6	5	3
100 Aggression - Stance			.83	(-.22)						
101 Aggression - Engagement			.71	.41						
*102 Aggression - Aid/Advice			.93	.41						
103 Aggression - Coping			-.88	.90						
*104 Aggression - Hostile										
*105 Aggression - Depressive										
*106 Aggression - Neutral				.89						
107 Aggression - Positive			.88	(.19)						

---

* - This variable was only present in the Stage III instrument

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable - "Negative Affect"

Table 4

STAGE I

OCCUPATIONAL VALUES

AUSTIN - 14 YEAR OLDS	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.667*	-.151	-.018	-.252	.089	-.209
15 Esthetics	.023	.010	-.019	-.832*	-.115	-.067
16 Independent	-.031	-.024	-.043	-.002	.016	.966*
17 Management	.214	-.578*	-.218	.038	.468*	-.024
18 Success	-.438*	-.100	.216	.283	.578*	-.074
19 Self-Satisfaction	.599*	.278	.114	.108	.099	.034
20 Intellectual Stimulation	.302	-.191	.720*	.025	-.064	-.177
21 Creativity	-.100	-.316	.219	.044	-.709*	-.068
22 Security	.103	.477*	-.174	.503*	-.020	-.266
23 Prestige	-.712*	-.129	-.145	-.265	-.032	-.044
24 Economic Returns	-.759*	.029	-.187	.076	.155	-.040
25 Surroundings	.040	.735*	-.094	.126	.194	-.084
26 Associates	.173	.594*	-.098	-.138	.038	.087
27 Variety	.195	-.088	.747*	-.012	-.140	.077
28 Follow Father	.034	-.219	-.540*	.493*	-.291	-.044

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

AUSTIN - 14 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item						
14 Altruism	.784*	-.051	-.098	.096	-.088	.112
15 Esthetics	.003	-.051	-.057	-.833*	.050	.204
16 Independence	-.003	-.183	-.235	-.006	.817*	.179
17 Management	.089	-.281	-.451*	.086	-.660*	.285
18 Success	-.549*	-.044	-.170	.457*	-.161	.280
19 Self-Satisfaction	.578*	.067	.234	.238	.023	.158
20 Intellectual Stimulation	.219	.819*	-.157	.006	-.063	-.006
21 Creativity	-.190	.464*	-.183	-.497*	-.216	-.197
22 Security	.163	.024	.793*	.182	-.128	.128
23 Prestige	-.760*	-.205	-.098	.046	-.002	.024
24 Economic Returns	-.692*	-.329	-.004	.331	.099	-.014
25 Surroundings	.141	-.302	.706*	-.083	.055	.004
26 Associates	.460*	-.354	.123	.207	.366	-.194
27 Variety	.211	.771*	.027	.038	.059	.140
28 Follow Father	-.102	-.118	-.115	.109	-.034	-.907*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR AUSTIN 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.99**	.13	-.04	-.07	.05	.02
12	.10	-.20	.85*	.24	-.39	-.08
13	-.08	.85*	.07	.18	-.09	-.47
14	.03	-.01	.05	.80*	.57	.19
15	-.07	.45	.14	-.09	-.17	.86*
16	-.07	.10	.49	-.51	.70	-.06

---

* Similar factors
** Identical factors

Table 7

ITEM COMPARISON FOR AUSTIN 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

AUSTIN	VI		A		B		C		D	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	12	13	13	12	14	14	15	16
14 Altruism	.67	.78								
15 Esthetics							-.83	-.83		
16 Independence									.82	.97
17 Management			-.58	-.45					.47	(.29)*
18 Success	-.44	-.55					(.28)	.46	.58	(.28)
19 Self-Satisfaction	.60	.58								
20 Intellectual Stimulation					.72	.82				
21 Creativity					(.22)	.46	(.04)	-.50	-.71	(-.20)
22 Security			.48	.79			.50	(.18)		
23 Prestige	-.71	-.76								
24 Economic Returns	-.76	-.69								
25 Surroundings			.74	.71						
26 Associates	(.17)	.46	.60	(.12)						
27 Variety					.75	.77				
28 Follow Father					-.54	(-.12)	.49	(.11)	(-.29)	-.91

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 8

STAGE III

VIEWS OF LIFE

AUSTIN - 14 Year Olds	Loadings Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
Item								
43 Locus of Control(Internal/External)	.044	.081	.054	.555*	.077	.187	-.098	.061
44 Academic Locus of Control	.006	.182	-.077	.070	.012	-.230	.058	.102
45 Action-Inaction	-.016	.494*	-.002	.009	-.102	.009	.010	.057
46 Immediate - Delayed Action	.012	.550*	.046	-.145	.168	-.152	-.036	-.162
47 Rate of Action	.060	.009	-.089	-.012	-.164	.135	.557*	-.006
48 Intrinsic-Extrinsic Work Motivation	-.008	.075	.178	.166	.522*	.095	-.109	.033
49 Task Achievement-Interpersonal Relations	.009	.048	.424*	.082	.022	-.006	-.143	.055
50 Competition - Cooperation	-.126	-.090	.083	-.044	.110	-.289	.376	-.025
51 Independent - Obedient	.397	-.069	.063	.168	-.047	.161	.082	-.060
52 Earned- Bestowed Status	.157	.343	-.337	.191	.058	-.002	-.165	-.043
53 Confront - Avoid	.305	-.034	-.026	-.147	.168	.082	-.351	.266
54 Self-Other Initiation	-.112	.007	.085	.078	-.036	-.061	-.026	.557
55 Self-Other Solver	.183	.116	.272	.119	-.385	-.042	.108	.084
56 Self-Joint Implementation	.000	-.060	.510*	-.125	.052	-.011	.069	.025
58 Instrument - Fantasy	.029	-.049	-.057	.072	.112	.494*	.070	.040
59 Emotional Control/Expressivity	-.111	.115	.105	-.415*	-.004	.106	-.078	.023
60 Activity/Passivity under Stress	.362	.061	-.088	.140	-.173	-.080	-.078	-.080
61 Positive/Negative Self-Esteem	-.163	-.055	.088	-.176	.048	.181	-.057	.280
62 View of Live (Complex/Simple)	.572*	.026	.045	-.037	.046	-.011	-.035	-.059

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

AUSTIN - 14 Year Olds	Loadings Factor 17	Factor 18
Sub-Scores		
1 Active Coping	-.049	.757*
2 Passive Coping	-.021	.816*
3 Active Defensive	.774*	-.183
4 Passive Defensive	.825*	.094

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

AUSTIN - 14 Year Olds	Factor Loading
Sub-Scores	Factor 25
37 Task Achievement	.655*
38 Authority	.720*
39 Aggression	.663*
40 Interpersonal Relations	.679*
41 Anxiety	.374

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

AUSTIN - 14 Year Olds

	COMMON FACTORS			
New Factor Designation	Factor Abre-viation	Stage I Desig-nation	Stage III Desig-nation	NAME
I	C(SC)	1	2	Copes with Anxiety
II	C(SC)	2	4	Copes with Aggression
III	C(SC)	3	1	Copes with Interpersonal Relations
IV	C(SC)	4	6	Copes with Authority
V	C(SC)	5	3	Copes with Task Achievement
VI	OVAL	11	11	Values Altruism and Self-Satisfaction; doesn't value Success, Prestige, and Economic Returns. (Values Associates)*
A	OVAL	12	13	Values Security and Surroundings; doesn't value Management. (Values Associates)
B	OVAL	13	12	Values Intellectual Stimulation and Variety. (Values Creativity; doesn't value Following Father's occupation)
C	OVAL	14	14	Doesn't value Esthetics. (Values Security, Following Father's occupation, and Success; doesn't value Creativity)
D	OVAL	15	16	(Values Management and Success; doesn't value Creativity or Following Father's occupation)
	UNIQUE FACTORS			
	C(SC)	6	-	Positive Attitudes toward Authority, Interpersonal Relations, and Task Achievement
	C(SC)	7	-	Positive, not Neutral Affect toward Task Achievement
	C(SC)	8	-	Negative, not Neutral Affect toward Task Achievement
	C(SC)	9	-	Positive Affect toward Authority
	C(SC)	10	-	Copes with Aggression via Engagement, with Positive Affect toward Interpersonal Relations
	C(SC)	-	5	Neutral, not Hostile Affect toward Interpersonal Relations; copes effectively with Authority with Neutral and Hostile Affect.
	C(SC)	-	7	Copes with Aggression via Stance, Engagement and without seeking Aid/Advice.
	C(SC)	-	8	Depressive Affect toward Interpersonal Relations and Aggression, without positive Affect toward Anxiety
	C(SC)	-	9	Hostile, Depressive, or Positive, not Neutral Affect toward Task Achievement; lack of Hostile Affect toward Anxiety
	C(SC)	-	10	Positive Attitude toward Task Achievement; lack of Positive Affect toward Aggression
	OVAL	16	-	Values Independence
	OVAL	-	15	Values Independence; doesn't value Management
	C(VOL)	-	[illegible]7	Views Life as Complex
	C(VOL)	-	[illegible]	Prefers Immediate Action
	C(VOL)	-	[illegible]	Concern with Task Achievement, Self-Implementor
	C(VOL)	-	20	Internal Locus of Control, Expressive and Accepting of Emotions
	C(VOL)	-	21	Intrinsically Motivated
	C(VOL)	-	22	Gains satisfaction from actual accomplishments
	C(VOL)	-	23	Prefers fast Rate of Action
	C(VOL)	-	24	Self-Initiator
	C(SAI)	17	-	Shows defensive behavior
	C(SAI)	18	-	Copes effectively
	C(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

AUSTIN - 14 Year Olds - STAGE I

			Probability Level
[i]C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement, without neutral or negative Affect	$p < .001$
C(SC)5-V	F < M	Copes effectively with Task Achievement via Stance and Engagement	$p < .042$
S(SC)6	F > M	Positive attitudes toward Authority, interpersonal Realtions, and Task Achievement	$p < .033$
C(SC)7	F > M	Positive, not neutral Affect toward Task Achievement	$p < .013$
C(SC)8	F > M	Negative, not neutral Affect toward Task Achievement	$p < .016$
[i]OVAL 11-VI	F > M	Values Altruism and Self-satisfaction; doesn't value Success, Prestige, or Economic Returns	$p < .001$
OVAL 13-B	F > M	Values Intellectual Stimulation and Variety; doesn't want to Follow Father	$p < .001$
OVAL 14-C	F < M	Values Security and Following Father; doesn't value Esthetics	$p < .001$

---

* 8/18 (44%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III).

Table 13

SIGNIFICANT SEX DIFFERENCES*

AUSTIN - 14 Year Olds - Stage III

			Probability Level
C(SC)1-III	F > M**	Copes with Interpersonal Relations	$p < .001$
[i]C(SC)2-I	F < M	Copes with Anxiety	$p < .003$
C(SC)5	F > M	Neutral, not Hostile Affect toward Interpersonal Relations; Copes effectively with Authority with neutral, not hostile Affect	$p < .053$
C(SC)7	F < M	Copes with Aggression	$p < .035$
C(SC)10	F < M	Positive Attitude toward Task Achievement; lack of positive Affect toward Aggression	$p < .028$
[i]OVAL 11-VI	F > M	Values Altruism, Self-Satisfaction, and Associates; doesn't value Success, Prestige, or Economic Returns	$p < .001$
OVAL 16-D	F > M	Doesn't value Following Father's Occupation	$p < .004$
[n]C(SAI)25	F > M	Copes effectively (self-appraisal)	$p < .001$

---

* 8/25 (32%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 14

SIGNIFICANT SES DIFFERENCES*

AUSTIN - 14 Year Olds - STAGE I

			Probability Level
C(SC)3-III	L < M**	Copes effectively with Interpersonal Relations via Stance and Engagement; with neutral, not negative Affect	$p < .017$
[s]OVAL 12-A	L > M	Values Security, Surroundings, and Associates; doesn't value Management	$p < .001$
OVAL 13-B	L > M	Values Intellectual Stimulation and Variety; doesn't want to Follow Father	$p < .001$
[n]C(SAI)17	L > M	Shows defensive behavior	$p < .001$

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample

[n] = No comparable instrument in the other sample

Table 15

SIGNIFICANT SES DIFFERENCES*

AUSTIN - 14 Year Olds - STAGE III

			Probability Level
C(SC)7	L > M**	Copes with Aggression	$p < .007$
[s]OVAL 13-A	L > M	Values Security and Surroundings; doesn't value Management	$p < .005$
[n]C(VOL)20	L < M	Internal Locus of Control; freely expresses and accepts emotions	$p < .001$

---

* 3/25 (12%) of the significance tests were significant above chance. This indicates the results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

[s] = The SES difference on this factor is similar to one in the other sample

[n] = No comparable instrument in the other sample

Table 16a

Stage I

REGRESSION ANALYSIS

AUSTIN - 14 Year Olds				CRITERION: Reading Achievement	
Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)7	12.09	.001	.19	.04	.04
[i]C(SC)2-II	4.44	.036	.22	.05	.01
-OVAL 12-A	5.97	.015	.26	.07	.02
[i]Ed. Asp.	32.75	.001	.40	.16	.09
[i]Occ. Asp.	6.05	.014	.42	.17	.02
[i]Raven	92.45	.001	.60	.36	.19
[i]BRS	4.78	.030	.61	.37	.01

Additional Explanatory Variables:

	pr	p	r	p
OVAL 16			.11	.05
[n]-C(SAI) 17			-.19	.05

---

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

Table 16b

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)7 = Positive, not neutral Affect toward Task Achievement					
[i]C(SC)2-II = Copes with Aggression					
-OVAL 12-A* = Values Management; doesn't value Security; Surroundings, or Associates					
[i]Ed. Asp. = Educational Aspiration					
[i]Occ. Asp. = Occupational Aspiration					
[i]RAVEN = Raven Progressive Matrices					
[i]BRS = Behavior Rating Scale					

Additional Explanatory Variables:

	pr	p	r	p
OVAL 16 = Values Independence				
[n]-C(SAI)17* = Does not show defensiveness				

---

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a

Stage III

REGRESSION ANALYSIS

AUSTIN - 14 Year Olds — CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}C(VOL)20	16.89	.001	.30	.09	.09
^{n}C(VOL)17	9.73	.002	.37	.13	.05
^{n}C(SAI)25	9.49	.002	.42	.18	.04
-C(SC)7	2.41	.122	.44	.19	.01
^{i}C(SC)4-II	5.71	.018	.47	.22	.03
^{i}Ed.Asp.	7.35	.007	.50	.25	.03
^{i}RAVEN	17.12	.001	.56	.32	.07
^{i}BRS	8.18	.005	.59	.35	.03

Additional Explanatory Variables:

	pr	p	r	p
C(SC)1-III			.20	.05
C(SC)3-V			.15	.05
^{i}OCC ASP			.22	.05
OVAL 11-VI	.14	.05		
OVAL 15	.15	.05		

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

Table 17b

Stage III

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables: F p Multiple R R^2 R^2 Change

[n]C(VOL)20 = Internal Locus of Control; freely expresses and accepts emotions

[n]C(VOL)17 = Views life as complex

[n]C(SAI)25 = Copes well (self-appraisal)

-C(SC)7* = Doesn't cope with Aggression via Stance (which may be hostile)

[i]C(SC)4-II Copes with Aggression non-belligerently

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

pr p r p

C(SC)1-III = Copes with Interpersonal Relations

C(SC) 3-V = Copes with Task Achievement

[i]OCC ASP = Occupational Aspiration

OVAL 11-VI = Values Altruism, Self-satisfaction, and Associates; doesn't value Success, Prestige, or Economic Returns

OVAL 15 = Values Independence; doesn't value Management

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a

Stage I

RECRESSION ANALYSIS

AUSTIN - 14 Year Olds				CRITERION: Math Achievement	
Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)7	8.24	.004	.16	.03	.03
-C(SC)10	3.45	.064	.19	.04	.01
C(SC)2-II	4.10	.044	.22	.05	.01
OVAL 16	4.45	.036	.25	.06	.01
[i]ED ASP	42.54	.001	.42	.17	.11
[i]OCC ASP	5.35	.021	.43	.19	.01
[i]RAVEN	178.13	.001	.70	.48	.30
[i]BRS	6.02	.015	.70	.49	.01

Additional Explanatory Variables:

	pr	p	r	p
[n]-C(SAI)17	-.11	.05		

---

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

Table 18b

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change

C(SC)7 = Positive, not neutral Affect toward Task Achievement

-C(SC)10*= Does not cope with Aggression via (possibly hostile) Engagement; does not express positive Affect toward Interpersonal Relations

C(SC)2-II = Copes with Aggression non-belligerently

OVAL 16 = Values Independence

[i]ED ASP = Educational Aspiration

[i]OCC ASP = Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[n]-C(SAI)17* = Does not show defensiveness

---

[i] = An identical predictor or explanatory factor across samples

[n] = No comparable instrument in the other sample

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a

Stage III

REGRESSION ANALYSIS

AUSTIN - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(VOL)17	17.96	.001	.30	.09	.09
[n]C(VOL)20	14.03	.001	.40	.16	.07
[n]C(VOL)22	6.22	.014	.43	.19	.03
-C(SC)7	4.54	.035	.46	.21	.02
-OVAL 16-D	4.87	.029	.48	.23	.02
[i]OCC ASP	7.50	.007	.51	.26	.03
[i]RAVEN	28.97	.001	.61	.37	.11
[i]BRS	5.45	.021	.62	.39	.02

Additional Explanatory Variables:

	pr	p	r	p
[i]ED ASP			.28	.05
C(SC)6-IV	.15	.05		
-C(SC)5	-.15	.04		

---

[n] = No comparable instrument in the other sa[illegible]

[i] = An identical predictor or explanatory factor across samples

Table 19b

Stage III

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

^{n}C(VOL)17 = Views life as complex

^{n}C(VOL)20 = Internal Locus of Control; freely expresses and accepts emotions

^{n}C(VOL)22 = Satisfaction gained from actual accomplishment, rather than ideating or dreaming

-C(SC)7* = Doesn't cope with Aggression via (possibly hostile) Stance

-OVAL 16-D*= Values Following Father's occupation

^{i}OCC ASP = Occupational Aspiration

^{i}RAVEN = Raven Progressive Matrices

^{i}BRS = Behavior Rating Scale

Additional Explanatory Variables:

^{i}ED ASP = Educational Aspiration

C(SC)6-IV= Copes actively with Authority

-C(SC)5* = Hostile, not neutral Affect toward Interpersonal Relations and Authority; copes ineffectively with Authority

---

^{n} = No comparable instrument in the other sample

^{i} = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a

Stage I

REGRESSION ANALYSIS

AUSTIN - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)7	11.07	.001	.18	.03	.03
C(SC)6	8.35	.004	.24	.06	.02
-C(SC)1-I	5.68	.018	.27	.08	.02
[i]C(SC)2-II	4.20	.041	.30	.09	.01
[i]ED ASP	31.36	.001	.41	.17	.08
[i]RAVEN	52.30	.001	.54	.29	.12
[i]BRS	83.64	.001	.66	.44	.15

Additional Explanatory Variables:

	pr	p	r	p
OVAL 11-VI			.12	.05
[s]-OVAL 14-C	-.11	.05		
[i] OCC ASP	.13	.02		

---

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

Table 20b

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)7 = Positive, not neutral Affect toward Task Achievement

C(SC)6 = Positive attitudes toward Authority, Interpersonal Relations, and Task Achievement

-C(SC)1-I* = Does not cope well with Anxiety

[i]C(SC)2-II = Copes with Aggression

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

OVAL 11-VI = Values Altruism and Self-satisfaction; doesn't value Success, Prestige, or Economic Returns

[s]-OVAL 14-C* = Doesn't value Security or Following Father's occupation; values Esthetics

[i]OCC ASP = Occupational Aspiration

---

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a

Stage III

REGRESSION ANALYSIS

AUSTIN - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
^{n}C(VOL)20	18.14	.001	.30	.09	.09
^{n}C(SAI)25	11.00	.001	.38	.15	.05
^{n}C(VOL)17	6.44	.012	.42	.18	.03
C(SC)6-IV	6.25	.013	.45	.21	.03
^{n}-C(VOL)18	3.89	.05	.47	.22	.02
-C(SC)7	3.90	.05	.49	.24	.02
^{i}C(SC)4-II	7.48	.007	.52	.27	.03
-C(SC)5	2.94	.088	.53	.28	.01
C(SC)1-III	6.35	.013	.56	.31	.03
^{s}OVAL 14-C	6.08	.015	.58	.33	.02
^{i}ED ASP	5.92	.016	.60	.36	.02
^{i}RAVEN	6.13	.014	.62	.38	.02
^{i}BRS	29.05	.001	.69	.47	.09

Additional Explanatory Variables

	pr	p	r	p
C(SC)3-V			.18	.05
^{n}C(VOL)22			.19	.05
^{i}OCC ASP	.16	.04		

---

^{n} = No comparable instrument in the other sample

^{s} = A similar predictor across samples

^{i} = An identical predictor or explanatory factor across samples

Table 21b

Stage III

DESCRIPTION OF REGRESSION FACTORS

AUSTIN - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

[n]C(VOL)20 = Internal Locus of Control; freely expresses and accepts emotions

[n]C(SAI)25 = Copes well (self-appraisal)

[n]C(VOL)17 = Views life as complex

C(SC)6-IV = Copes with Authority

[n]-C(VOL)18* = Prefers Delayed Action, or Inaction in face of impending situations

-C(SC)7* = Doesn't cope with Aggression via (possibly hostile) Stance

[i]C(SC) 4-II = Copes with Aggression non-belligerently

-C(SC)5* = Hostile, not neutral Affect toward Interpersonal Relations and Authority; copes ineffectively with Authority

C(SC)1-III = Copes well in Interpersonal Relations

[s]OVAL 14-C = Values Success; doesn't value Esthetics or Creativity

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)3-V = Copes with Task Achievement

[n]C(VOL)22 = Gains satisfaction from actual accomplishments, rather than ideating or dreaming

[i]OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[s] = A similar predictor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

AUSTIN - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	19.0%	29.6%	11.9%
Coping/Motivation (unique)	5.8%	5.4%	9.5%
Total	36.2%	48.4%	29.0%

AUSTIN - 14 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	6.8%	10.7%	2.3%
Coping/Motivation (unique)	13.2%	13.0%	24.3%
Total	31.7%	36.9%	38.0%

Table 23

CORRELATIONS AMONG THE CRITERIA

AUSTIN - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.59		.57
GPA	.58		

AUSTIN - 14 Year Olds - Stage III

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.53		.61
GPA	.63		

AUSTIN BLACK 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Austin Black 10 year old students from the 1965 (Stage I) sample. The first results presented are the factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. Sex differences are described next. Finally, the findings from the regression analysis are presented, showing the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analysis of the Sentence Completion Variables for Stage I resulted in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were five general factors, corresponding to coping with aggression, authority, anxiety, interpersonal relations, and task achievement. Most included neutral, not negative affect in responding to the problem. Unit weights were constructed using those variables having a factor loading $\geq$ .40. For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas.

Occupational Values

Factor analysis of the Occupational Values variables yielded six factors. Once again, variables having a factor loading $\geq$ .40 were used to construct a unit weighted score for each factor (see analysis in Table 4).

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: ineffective or defensive responding, and positive coping.

SEX DIFFERENCES

Sex differences are presented in Table 12. Females more than males showed a neutral, not negative affect toward task achievement. Girls also preferred self-satisfaction and security more than boys. Females valued altruism, and management rather than economic returns more than males. Also, valuing independence and surroundings rather than following father's occupation was preferred more by females than males. Boys, however, reported more defensive behavior than girls.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement are presented in Tables 16a and 16b. Good readers valued intellectual stimulation and variety. No coping factors were predictive of reading scores. These students had high educational aspirations and aptitude scores. Their peers rated them highly on coping.

Math Achievement

Those factors that predicted math scores are presented in Tables 18a and 18b. There were only two variables that predicted math scores. These were occupational aspirations and peer coping ratings. Interestingly, aptitude was not predictive. Aptitude was correlated in a positive direction with math, but was not of sufficient magnitude to be significant.

Grade Point Average

Tables 20a and 20b illustrate the predictors for GPA. Valuing success rather than creativity was predictive. Also, educational aspirations and peer coping ratings were predictive. Aptitude was not a significant predictor. Correlated with grades was not valuing intellectual stimulation and variety.

PER CENTAGE OF VARIANCE

In order to assess the practical implications of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivation variables. The unique variance of both aptitude and coping/motivation variables was that increment variance obtained beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

Although aptitude accounted for 6% of reading achievement, it accounted for a very small percentage of math and GPA, 2.8%, 1.6%, respectively. Coping/motivation contributed 17.0%, 6.0%, and 11.2% to reading, math and GPA scores. This variance was largely due to motivational rather than coping variables. In total variance, approximately 25%, 9%, and 14% of each criterion was accounted for by all variables combined.

STAGE I

SENTENCE COMPLETION

	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Facto 10
AUSTIN BLACK - 10 Year Olds										
Item										
39 Att. - Authority	-.086	-.011	.431*	-.091	.029	.045	-.301	-.045	.332	.17
40 Att. - Interpersonal Relations	-.073	.044	-.132	-.082	.081	.074	-.057	-.058	-.079	.75
41 Att. - Task Achievement	-.101	.052	.124	.160	-.165	-.147	-.016	-.006	.020	.58
43 Aggression - Stance	.148	.749*	-.153	-.038	-.068	.129	.020	.356	.227	.23
44 Aggression - Engagement	.076	.689*	-.140	-.065	-.164	.107	.054	.408*	.225	.25
45 Aggression - Coping Eff.	-.017	.950*	.073	-.042	-.002	-.089	-.045	-.042	-.054	.06
46 Aggression - Negative Aff.	-.000	-.894*	-.080	-.081	-.062	.151	-.001	.181	.124	.10
47 Aggression - Pos. Affect	.000	.894*	.080	.081	.062	-.151	.001	-.181	-.124	-.10
48 Authority - Stance	.037	-.174	.067	.452*	-.006	-.305	-.099	.291	.526*	.25
49 Authority - Engagement	.200	-.051	-.192	.587*	.017	-.148	-.029	.056	.399*	.19
50 Authority - Coping Eff.	-.057	-.058	.094	.866*	.127	-.000	.065	.084	.281	.04
51 Authority - Negative Aff.	-.069	-.095	-.052	-.892*	-.186	-.093	-.125	.138	.143	.09
52 Authority - Neutral Aff.	.076	.092	-.008	.868*	.206	.064	.095	-.098	-.331	-.03
53 Authority - Pos. Affect	-.038	-.004	.242	-.024	-.104	.106	.108	-.144	.786*	-.22
54 Anxiety - Stance	.948*	.003	.024	.078	.019	-.010	.019	-.005	-.039	-.00
55 Anxiety - Engagement	.826*	-.003	.062	-.030	-.011	.034	-.132	-.071	-.117	-.05
56 Anxiety - Coping Eff.	.917*	.027	-.049	.087	.037	-.055	.127	.029	-.027	.01
57 Anxiety - Negative Aff.	-.936*	-.035	-.041	-.009	-.104	-.006	-.073	-.013	-.088	.05
58 Anxiety - Neutral Aff.	.936*	.035	.041	.009	.104	.006	.073	.013	.088	-.05

STAGE I

SENTENCE COMPLETION

AUSTIN BLACK - 10 Year Olds (continued)	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	-.056	-.021	-.225	.065	.060	.807*	.046	.062	-.001	-.010
60 IPR - Engagement	.037	-.256	.033	-.034	.155	.854*	-.061	-.111	.031	-.045
61 IPR - Coping Eff.	.009	.003	.124	.092	.876*	.207	-.005	.067	.034	-.118
62 IPR - Negative Affect	-.128	.002	.019	-.202	-.933*	.018	-.182	-.055	.068	.008
63 IPR - Neutral Affect	.158	-.009	-.008	.188	.922*	.038	.163	-.124	-.061	.066
64 IPR - Positive Affect	-.136	.027	-.041	.035	-.059	-.230	.060	.728*	-.022	-.304
65 Task Achievement -Stance	.035	.030	.910*	.079	.041	-.113	.175	-.007	.043	-.030
66 Task Ach. - Engagement	.047	.042	.906*	-.049	-.046	-.029	.053	.009	.034	-.046
67 Task Ach. - Coping Eff.	.078	-.006	.905*	.061	.094	-.074	.293	.039	.037	.000
68 Task Ach. - Negative Aff.	-.131	.044	-.344	-.096	-.248	-.062	-.825*	-.105	-.001	-.001
69 Task Ach. - Neutral Aff.	.071	.033	.276	.165	.179	-.056	.883*	-.152	.057	-.096
70 Task Ach. - Pos. Affect	.132	-.179	.143	-.167	.149	.275	-.175	.599*	-.130	.228

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 4

STAGE I

OCCUPATIONAL VALUES

		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
AUSTIN BLACK - 10 Year Olds							
Item							
14	Altruism	-.146	.148	.690*	.258	-.275	.103
15	Esthetics	-.219	-.036	.141	-.692*	.180	-.266
16	Independence	-.284	-.138	.013	.085	.655*	-.076
17	Management	.027	-.355	.668*	-.126	.176	.120
18	Success	-.031	-.089	-.043	.028	-.151	.774*
19	Self-Satisfaction	.116	.743*	.127	.081	.107	.060
20	Intellectual Stimulation	.823*	.028	.010	-.123	-.157	-.023
21	Creativity	.377	-.274	-.231	-.273	-.298	-.497*
22	Security	-.160	.759*	-.100	-.184	-.014	-.106
23	Prestige	-.265	-.381	-.287	-.313	-.050	.387
24	Economic Returns	-.102	-.163	-.578*	.086	-.074	.285
25	Surroundings	.047	.298	-.110	.079	.572*	-.202
26	Associates	-.186	-.079	.105	.769*	.213	-.121
27	Variety	.858*	-.029	.016	.144	.084	-.097
28	Follow Father	-.326	-.144	-.312	.324	-.614*	-.266

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

AUSTIN BLACK - 10 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	.229	.800*
Item 2 Passive Coping	-.023	.876*
Item 3 Active Defensive	.900*	.032
Item 4 Passive Defensive	.863*	.153

AUSTIN BLACK - 14 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	.665*	.243
Item 2 Passive Coping	.027	.904*
Item 3 Active Defensive	.875*	-.029
Item 4 Passive Defensive	.385	.589*

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

USTIN BLACK - 10 Year Olds

ew Factor esignation	Factor Abbreviation	Stage I Designation	NAME
	C(SC)	1	Copes with Anxiety with Neutral, not Negative Affect
	C(SC)	2	Copes with Aggression with Positive, not Negative Affect
	C(SC)	3	Positive Attitude toward Authority; Copes with Task Achievement
	C(SC)	4	Copes with Authority with Neutral not Negative Affect
	C(SC)	5	Copes with Interpersonal Relations with Neutral, not Negative Affect
	C(SC)	6	Confronts and engages Interpersonal Relations
	C(SC)	7	Neutral, not Negative Affect toward Task Achievement
	C(SC)	8	Engages Aggression; Positive Affect toward Interpersonal Relations and Task Achievement
	C(SC)	9	Confronts and engages Authority with Positive Affect
	C(SC)	10	Positive Attitude toward Interpersonal Relations and Task Achievement
	OVAL	11	Values Intellectual Stimulation, not Variety
	OVAL	12	Values Self-Satisfaction and Security
	OVAL	13	Values Altruism and Management; does not value Economic Returns
	OVAL	14	Values Associates; does not value Esthetics
	OVAL	15	Values Independence and Surroundings; does not value Following Father's Occupation
	OVAL	16	Values Success, not Creativity
	C(SAI)	17	Values Defensive Behavior
	C(SAI)	18	Copes effectively

Table 12

SIGNIFICANT SEX DIFFERENCES*

AUSTIN BLACK - 10 Year Olds - Stage I

			Probability Level
C(SC)7	F > M**	Neutral, not Negative Affect toward Task Achievement	$p < .03$
OVAL 12	F > M	Values Self-Satisfaction and Security	$p < .001$
OVAL 13	F > M	Values Altruism and Management, doesn't value Economic Returns	$p < .004$
OVAL 15	F > M	Values Independence, Surroundings; doesn't value Following Father's Occupation	$p < .001$
C(SAI)17	F < M	Shows defensive behavior	$p < .002$

---

* 5/18 (28%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

Table 16a.

Stage I

REGRESSION ANALYSIS

AUSTIN BLACK - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-OVAL 11	5.12	.03	.26	.07	.07
ED ASP	10.27	.002	.43	.19	.12
RAVEN	5.40	.02	.50	.25	.06
BRS	4.24	.04	.54	.29	.04

Additional Explanatory Variables:

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN BLACK - 10 Year Olds   CRITERION: Reading Achievement

Predictor
Variables:

-OVAL 11* = Values Intellectual Stimulation, not Variety

ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

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* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

AUSTIN BLACK - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
OCC ASP	4.60	.04	.25	.06	.06
RAVEN	2.15	NS	.30	.09	.03
BRS	5.68	.02	.40	.16	.07

Additional Explanatory Variables:

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN BLACK - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

OCC ASP = Occupational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

Table 20a.

Stage I

REGRESSION ANALYSIS

AUSTIN BLACK - 10 Year Olds   CRITERION: Grade Point Average

Predictor Variables:	F	P	Multiple R	R^2	R^2 Change
OVAL 16	5.27	.02	.26	.07	.07
ED ASP	4.22	.04	.35	.12	.05
RAVEN	1.28	NS	.37	.14	.02
BRS	13.99	.001	.54	.29	.15

Additional Explanatory Variables:

	pr	p	r	p
-OVAL 11	-.27	.035		

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN BLACK - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

OVAL 16 = Values Success; doesn't value Creativity

ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

- OVAL 11* = Doesn't value Intellectual Stimulation and Variety

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* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

AUSTIN BLACK - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	6.0%	2.8%	1.6%
Coping/Motivation (unique)	17.0%	6.0%	11.2%
Total	24.9%	9.0%	14.0%

AUSTIN BLACK 14 YEAR OLDS - RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Austin Black 14 year old students from the 1965 (Stage I) sample. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. An analysis of sex differences will be described. Most important, the regression analyses will be delineated in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted in ten factors which accounted for a substantial percentage of the respectiv variances. These variables grouped primarily according to behavior areas e.g., aggression variables loading on one factor, authority variables on another. The analysis appears in Table 1. There are four general factor corresponding to coping with aggression, authority, anxiety, and task achievement. Variables involving interpersonal relations, the fifth behavior area, loaded on two factors. Factor 3 represents coping effecti ness with neutral, not negative affect. Factor 8 involves coping effecti ly with interpersonal relations via stance and engagement. Unit weights were constructed using those variables having a factor loading (≥ .40). For example, factor 1 consists of all five variables dealing with coping with aggression. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors. Once again, variables having a factor loading ≥ .40 were used to construct a unit weighted score for each factor (see results in Table 4).

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) is illustrated in Table 9. This is a self-report measure of coping effectiveness. Two factors emerged: Active behavior and passive behavior These results are unique as all other samples loaded on the more evaluative dimensions of coping vs. defense rather than the stylistic active/passive dimension in this Austin Black 14 year old sample. It appears that for these students, activity vs. passivity is a more important dichotomy than appropriateness or effectiveness of behavioral strategy in self-reports of coping effectiveness.

Table 11 depicts all the factors of the Sentence Completion, Occupational Values, and Social Attitudes Inventory instruments. There are ten Sentence Completion factors, six Occupational Values factors, and two Social Attitudes Inventory factors.

SEX DIFFERENCES

Sex differences are listed in Table 12. As only three of eighteen tests proved significant, these could be due to chance. Nevertheless, all three sex differences for Austin Black 14 year olds were on Occupational Values factors. Females placed greater value on altruism, self-satisfaction, associates, intellectual stimulation, variety, and esthetics. These are intrinsic values having to do with valuing a work setting which is both pleasant and challenging. Males, on the other hand, more highly valued extrinsic concerns of prestige and economic returns. Males also valued creativity and following father's occupation.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement are listed in Tables 16a and 16b. Good readers coped positively with aggression. They valued altruism, self-satisfaction, and associates, but not creativity. In addition, these students had high aptitude scores and high aspirations for both career and education.

Math Achievement

Predictors of math achievement are listed in Tables 18a and 18b. There were fewer predictors of success in math for Austin Black 14 year olds than for any other sample on any criteria. Good math students coped positively with aggression. Aptitude was also a powerful predictor.

Grade Point Average

Students with high GPA did not cope well with anxiety or interpersonal relations. They lacked positive affect toward authority and interpersonal relations and did not cope with authority by taking a stance, or facing the problem. Aptitude was a significant predictor of GPA.

In sum, there were few predictors of success in school for Austin Black 14 year olds. Coping with aggression predicted for reading and math, but not for GPA. In fact, coping variables generally predicted teacher grades negatively. Peer ratings did not contribute to the prediction of any criterion. Aptitude accounted for 28% of the variance in math achievement, but only 7% in reading and 5% in GPA.

Even more than in the case of the Chicago-area Blacks (not the city of Chicago), the mostly Black teachers of these Austin Black children seem to have been punishing, with poor grades, the very kinds of positive attitudes and coping skills that tended to foster good achievement, objectively measured. Perhaps this helps to account for the low degree of association between good coping and objective achievement in this sample. The fact that GPA correlated weakly with reading (.28) and math (.30), only one-third as close an association as in the Austin Anglo sample, seems to support such an interpretation.

PERCENTAGE OF VARIANCE

The percentage of variance accounted for by aptitude and coping/motivation variables, respectively, in the criterion measures further illustrates the unusual pattern in this sample. These are listed in Table 22. It can be seen that aptitude is an especially important predictor of math achievement. Aptitude also contributes to the prediction of reading and GPA, although it accounts for a small percentage of the variance in these two criteria.

The coping/motivation factors account for 15% of the variance in reading achievement, twice as much as aptitude. In math, coping with aggression accounts for 6% of the variance. Aptitude is clearly important for math achievement (29%, uniquely). Coping/motivation factors account for 15% of the variance in GPA. This is misleading, however, since it is the poor copers, and students with negative attitudes who attain better grades. Considering the universal association of good coping skills and positive attitudes with all achievement criteria, in all national samples except the Austin and Chicago Blacks, it looks rather clear that these Black children, in the 60's, were subjected to teaching that could only have confused them and hindered them in their development of either academic skills or coping skills for dealing with life in general.

Table 1

STAGE I

SENTENCE COMPLETION

	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
AUSTIN BLACK - 14 Year Olds										
Item										
39 Att. - Authority	.007	-.086	.068	.060	.008	-.046	.194	-.073	.782*	.300
40 Att. - Interpersonal Relations	-.035	-.130	.130	-.117	-.014	.101	.015	-.093	.164	.775
41 Att. - Task Achievement	.201	.305	.043	.123	-.035	.038	-.060	.198	.584*	-.073
43 Aggression - Stance	-.060	.840*	-.088	.049	-.015	.038	-.199	.219	.104	.085
44 Aggression - Engagement	-.023	.772*	-.087	-.099	.017	.086	-.182	.214	.287	.117
45 Aggression - Coping Eff.	.031	.945*	.070	.083	.077	.058	.121	-.015	-.025	-.062
46 Aggression - Negative Aff.	.003	-.866*	-.193	-.120	-.043	-.003	-.214	.193	.125	.130
47 Aggression - Pos. Affect	-.003	.866*	.193	.120	.043	.003	.214	-.193	-.125	-.130
48 Authority - Stance	.115	.159	-.198	.563*	.066	-.133	.107	.416*	-.054	.393
49 Authority - Engagement	-.054	.193	-.111	.410*	.310	-.119	.195	-.005	-.380	.203
50 Authority - Coping Eff.	.205	.113	.022	.892*	.066	-.047	.137	.179	.077	.028
51 Authority - Negative Aff.	-.160	-.044	-.292	-.874*	-.066	-.004	-.028	.077	-.054	.157
52 Authority - Neutral Aff.	.166	.033	.303	.860*	.069	.013	-.130	-.108	.043	-.144
53 Authority - Pos. Affect	-.039	.057	-.070	.039	-.017	-.047	.836*	.165	.059	-.063
54 Anxiety - Stance	.892*	-.071	.032	.131	.020	.075	-.036	-.023	.049	-.182
55 Anxiety - Engagement	.733*	-.166	.008	.050	.015	-.011	.050	.009	.135	-.285
56 Anxiety - Coping Eff.	.885*	.022	.102	.165	-.018	.078	-.038	.034	.040	.049
57 Anxiety - Negative Aff.	-.907*	-.070	-.093	-.051	-.053	.081	-.032	-.056	.044	-.168
58 Anxiety - Neutral Aff.	.907*	.070	.093	.051	.053	-.081	.032	.056	-.044	.168

STAGE I

SENTENCE COMPLETION

AUSTIN BLACK - 14 Year Olds (continued)

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
59 Interpersonal Relations - Stance	-.016	.020	.253	.050	.017	.221	.063	.753*	.080	-.025
60 IPR - Engagement	.107	-.024	.237	-.007	.020	-.056	.095	.752*	-.015	-.081
61 IPR - Coping Eff.	.094	.131	.773*	.093	.052	.059	.011	.525*	.057	.027
62 IPR - Negative Affect	-.163	-.082	-.902*	-.184	-.055	.096	.027	-.150	-.032	-.067
63 IPR - Neutral Affect	.157	.074	.901*	.179	.062	-.111	-.110	.149	.030	.057
64 IPR - Positive Affect	.051	.064	-.041	.042	-.072	.137	.761*	-.003	.018	.087
65 Task Achievement -Stance	-.079	.040	.130	.029	.932*	-.041	-.022	.046	.042	-.049
66 Task Ach. - Engagement	-.046	-.046	-.149	.072	.825*	-.035	-.073	-.037	-.193	.027
67 Task Ach. - Coping Eff.	.039	.125	.162	.110	.918*	.086	.002	.061	.088	.007
68 Task Ach. - Negative Aff.	-.374	-.154	-.328	-.337	-.395*	.274	.154	.103	-.187	.029
69 Task Ach. - Neutral Aff.	.218	-.000	.255	.234	.227	-.826*	-.129	-.112	.093	-.054
70 Task Ach. - Pos. Affect	.104	.174	-.000	.039	.113	.881*	.013	.047	.074	.045

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 4

STAGE I

OCCUPATIONAL VALUES

AUSTIN BLACK - 14 Year Olds

Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	.637*	.321	-.339	.086	-.010	-.164
15 Esthetics	-.287	-.118	.037	-.761*	-.340	.105
16 Independence	.047	-.080	.190	-.012	.041	.829*
17 Management	.160	-.036	-.838*	.183	-.022	-.005
18 Success	.123	-.253	.163	-.073	.389	-.505*
19 Self-Satisfaction	.680*	.146	.196	.142	.234	.003
20 Intellectual Stimulation	-.037	.834*	.056	-.042	-.153	-.121
21 Creativity	-.828*	.222	-.193	.035	.059	.077
22 Security	.109	-.016	.062	.040	.870*	-.026
23 Prestige	-.294	-.650*	.046	-.118	-.142	-.208
24 Economic Returns	-.225	-.628*	.139	.070	-.244	-.155
25 Surroundings	.297	-.034	.718*	.209	.072	.116
26 Associates	.552*	.134	-.101	-.228	.038	.261
27 Variety	-.239	.673*	.166	.055	-.348	-.217
28 Follow Father	-.341	-.065	-.001	.710*	-.348	.150

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

Stage I

SOCIAL ATTITUDES INVENTORY

AUSTIN BLACK - 14 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	.665*	.243
Item 2 Passive Coping	.027	.904*
Item 3 Active Defensive	.875*	-.029
Item 4 Passive Defensive	.385	.589*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

AUSTIN BLACK - 14 Year Olds

Factor Abbreviation	Stage I Designation	NAME
C(SC)	1	Copes with Anxiety
C(SC)	2	Copes with Aggression
C(SC)	3	Copes effectively with Interpersonal Relations with Neutral, not Negative Affect
C(SC)	4	Copes with Authority
C(SC)	5	Copes with Task Achievement
C(SC)	6	Positive, not Neutral Affect toward Task Achievement
C(SC)	7	Positive Affect toward Authority and Interpersonal Relations
C(SC)	8	Copes effectively with Interpersonal Relations via Stance and Engagement; copes with Authority via Stance.
C(SC)	9	Positive Attitude toward Authority and Task Achievement
C(SC)	10	Positive Attitude toward Interpersonal Relations; copes with Authority via Stance
OVAL	11	Values Altruism, Self-Satisfaction, and Associates; doesn't value Creativity.
OVAL	12	Values Intellectual Stimulation and Variety; doesn't value Prestige and Economic Returns.
OVAL	13	Values Surroundings; doesn't value Management
OVAL	14	Values Following Father's Occupation; doesn't value Esthetics.
OVAL	15	Values Security
OVAL	16	Values Independence; doesn't value Success
C(SAI)	17	Active Coping, Active Defensive Behavior
C(SAI)	18	Passive Coping, Passive Defensive Behavior

Table 12

SIGNIFICANT SEX DIFFERENCES*

AUSTIN BLACK - 14 Year Olds - Stage I

			Probability Level
OVAL 11	F > M	Values Altruism, Self-Satisfaction, and Associates; doesn't value Creativity.	$p < .001$
OVAL 12	F > M	Values Intellectual Stimulation and Variety; doesn't value Prestige or Economic Returns.	$p < .040$
OVAL 14	F < M	Values Following Father's Occupation; doesn't value Esthetics.	$p < .001$

---

* 3/18 (17%) of the significance tests were significant above chance. This indicates these results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

Table 16a.

Stage I

REGRESSION ANALYSIS

AUSTIN - BLACK - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)2	8.75	.004	.32	.10	.10
OVAL 11	3.74	.055	.38	.14	.04
ED ASP	4.94	.03	.44	.20	.05
RAVEN	7.44	.008	.52	.27	.07
BRS	.14	NS			

Additional Explanatory Variables:

	pr	p	r	p
OCC ASP			.24	.05

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN BLACK - 14 Year Olds CRITERION: Reading Achievement

C(SC)2 = Copes positively with Aggression

OVAL 11 = Values Altruism, Self-satisfaction, and Associates; doesn't value Creativity.

ED ASP = Educational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

Additional Explanatory Variables:

OCC ASP = Occupational Aspirations

Table 18a.

Stage I

REGRESSION ANALYSIS

AUSTIN BLACK - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)2	5.48	.02	.26	.07	.07
RAVEN	34.00	.001	.59	.35	.29
BRS	.71	NS			

Additional Explanatory Variables:

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN BLACK - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

C(SC)2 = Copes positively with Aggression

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

Table 20a.

Stage I

REGRESSION ANALYSIS

AUSTIN BLACK - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-(C(SC)7	9.58	.003	.33	.11	.11
-C(SC)1	6.46	.01	.42	.18	.07
RAVEN	4.82	.03	.48	.23	.05
BRS	2.37	NS			

Additional Explanatory Variables:

	pr	p	r	p
-C(SC)8			-.24	.05

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN BLACK - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

-C(SC)7 * = Lacks positive Affect toward Authority and Interpersonal Relations

-C(SC)1 = Does not cope well with Anxiety

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

Additional Explanatory Variables:

-C(SC)8 = Does not cope with Authority via Stance; does not cope effectively with Interpersonal Relations via Stance and Engagement

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

AUSTIN BLACK - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	7%	29%	5%
Coping/Motivation (unique)	15%	6%	15%
Total	27%	35%	23%

Table 23

CORRELATIONS AMONG THE CRITERIA

AUSTIN BLACK - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.46		.28
GPA	.40		

AUSTIN MEXICAN-AMERICAN 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Austin Mexican-American 10 year old students from the 1965 (Stage I) sample. Minority samples were not assessed in Stage III (1968). The first results presented are the factor analyses of the coping/motivational instruments; Sentence Completion, Occupational Values, and the Social Attitudes Inventory. Sex differences are described next. Finally, the findings from the regression analysis are presented, showing the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables resulted in ten factors which accounted for a substantial percentage of the variance. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The analysis appears in Table 1. There were five general factors: coping with aggression, authority, anxiety, interpersonal relations, and task achievement. Unit weights were constructed using those variables having a factor loading $\geq .40$. For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas.

Occupational Values

Factor analysis of the Occupational Values variables yielded six factors. Variables with a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analysis in Table 4).

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: Positive coping, and ineffective or defensive responding.

SEX DIFFERENCES

Sex differences are listed in Table 12. Since only two out of eighteen tests were significant, these could be due to chance. Males placed greater value than females on creativity as opposed to surroundings. Males also more highly valued following father's occupation.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement are listed in Tables 16a. and 16b. Good readers reported better coping and less defensive behavior than poorer readers, on the SAI. These students were also rated higher by their peers, on the BRS. In work, they placed greater value on prestige in contrast to pleasant associates. Aptitude and educational aspirations were also predictive. In addition, coping with interpersonal relations was correlated with reading achievement in this sample of Austin Mexican-American 10 year olds.

Math Achievement

Predictors of math achievement are listed in Tables 18a and 18b. Students who did well in math coped more effectively with interpersonal relations and were rated higher by their peers on the BRS. They also had higher aptitude scores and higher occupational aspirations than poorer students. In addition, valuing creativity, but not surroundings was also correlated with math achievement.

Grade Point Average

Predictors of GPA are listed in Tables 20a and 20b. Students with high grades reported more good coping and less defensive behavior than less successful students on the SAI. Their peers rated them higher on the BRS. These students tended, however, to be rather passive in coping with aggression, not confronting or engaging problems in this area. They did express more positive affect about interpersonal relations. In addition. aptitude was a predictor of GPA for these Austin Mexican-American 10 year olds.

PERCENTAGE OF VARIANCE

In order to assess the practical implications of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivational variables. The unique variance of both aptitude and coping/motivation variables was that increment variance obtained beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

Aptitude was an important predictor of reading and GPA but not for math. It uniquely accounted for a substantial 24.2% of the variance in reading, only 1.6% in math, and 11.8% in GPA.

The coping/motivation factors were also important predictors. They uniquely accounted for a very substantial 32.5% of the variance in reading, more than the aptitude measure. Much of this was accounted for by the self-report measure of coping (SAI). In math, the coping/motivation factors uniquely accounted for 9.7%. In GPA, the coping/motivation factors uniquely accounted for 13.6% of the variance, with the self-report again being important.

What is more, some properties that reflected both aptitude and coping increased the total variance explained: 13% in math, 58% in reading, and 31% in GPA. This gave added weight to the explanatory power and the practical usefulness of the coping/motivation measures.

In sum, the coping/motivation factors were both significant and useful predictors across all criteria and stages. Success in school for Mexican-American 10 year old students was strongly contingent upon positive attitudinal qualities and coping skills. The self-report measure of coping (SAI) was the most potent single coping/motivation predictor of reading achievement and GPA.

Table I

STAGE I

SENTENCE COMPLETION

	Loadings									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
AUSTIN MEXICAN-AMERICAN - 10 Year Olds										
Item										
39 Att. - Authority	-.057	-.087	-.087	-.096	.272	.092	.044	.005	.645*	.055
40 Att. - Interpersonal Relations	.076	.050	.096	.126	-.063	.001	-.075	.092	.811*	.054
41 Att. - Task Achievement	.037	.093	.122	-.077	.184	.138	.168	-.032	.477*	-.114
43 Aggression - Stance	-.094	.580*	.011	.204	.181	.023	-.034	.043	.139	.636*
44 Aggression - Engagement	-.149	.433*	.026	.157	.016	.068	-.040	.001	.054	.771*
45 Aggression - Coping Eff.	-.000	.919*	.061	.084	.194	.024	.066	-.023	.002	.204
46 Aggression - Negative Aff.	-.092	-.909*	-.004	-.118	-.239	.047	-.099	.050	.004	.005
47 Aggression - Pos. Affect	.092	.909*	.004	.118	.239	-.047	.099	-.050	-.004	-.005
48 Authority - Stance	-.106	.179	.081	-.025	.403*	.536*	-.051	.142	.157	-.172
49 Authority - Engagement	-.022	.190	.000	.005	.728*	.091	-.144	.027	.099	-.243
50 Authority - Coping Eff.	.169	.199	.104	.137	.837*	.159	.102	.033	.137	.138
51 Authority - Negative Aff.	-.239	-.207	-.034	-.209	-.826*	.057	-.102	.060	-.047	-.187
52 Authority - Neutral Aff.	.246	.219	.026	.187	.816*	-.190	.098	-.056	.061	.180
53 Authority - Pos. Affect	-.067	-.093	.043	.110	.026	.820*	.016	-.014	-.091	.024
54 Anxiety - Stance	.954*	.003	.044	.047	.064	.012	-.038	.002	.049	-.018
55 Anxiety - Engagement	.865*	-.105	-.012	-.002	-.097	.003	-.001	-.065	.014	-.054
56 Anxiety - Coping Eff.	.911*	.083	.144	-.010	.132	-.070	.041	.025	.023	.020
57 Anxiety - Negative Aff.	-.929*	-.083	-.060	-.031	-.161	.064	-.074	-.046	.017	.059
58 Anxiety - Neutral Aff.	.929*	.083	.060	.031	.161	-.064	.074	.046	-.017	-.059

STAGE I

SENTENCE COMPLETION

		Loadings									
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
AUSTIN MEXICAN-AMERICAN - 10 Year Olds (continued											
Item											
59	Interpersonal Relations - Stance	.090	.080	-.061	.015	-.039	.045	-.077	.888*	.051	-.125
60	IPR - Engagement	-.048	-.191	-.003	.057	.029	.046	.013	.877*	.024	.143
61	IPR - Coping Eff.	.031	.222	-.024	.872*	.106	.090	.148	.212	.099	.011
62	IPR - Negative Affect	-.054	-.132	.038	-.969*	-.115	-.013	.014	.047	.031	-.013
63	IPR - Neutral Affect	.024	.067	-.086	.941*	.179	.035	.017	-.049	-.080	.118
64	IPR - Positive Affect	.131	.287	.214	.110	-.287	-.096	-.144	.009	.217	-.464*
65	Task Achievement -Stance	.102	.042	.942*	-.039	.041	-.020	.149	.044	.072	-.057
66	Task Ach. - Engagement	.121	-.019	.885*	-.083	.048	-.038	-.094	-.069	-.009	-.014
67	Task Ach. - Coping Eff.	.070	.065	.905*	-.017	.044	.081	.286	-.042	.066	.036
68	Task Ach. - Negative Aff.	-.082	-.142	-.168	-.092	-.071	-.159	-.893*	.028	-.154	-.056
69	Task Ach. - Neutral Aff.	.111	.139	.200	.069	.062	-.389	.834*	-.057	-.065	-.049
70	Task Ach. - Pos. Affect	-.056	-.020	-.073	.017	.000	.758*	-.067	.047	.287	.142

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 4

STAGE I

OCCUPATIONAL VALUES

AUSTIN MEXICAN AMERICAN - 10 Year Olds

Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	.919*	-.114	.002	-.034	.073	-.023
15 Esthetics	.595*	-.332	.078	.139	-.475*	-.186
16 Independence	.841*	.128	-.078	-.018	-.138	-.024
17 Management	.873*	.184	-.040	.088	.102	-.011
18 Success	.820*	.271	.040	.105	-.126	-.076
19 Self-Satisfaction	.932*	-.095	-.056	-.060	.061	.058
20 Intellectual Stimulation	.871*	-.122	.167	.036	.217	-.015
21 Creativity	-.272	-.392*	.661*	.241	.081	-.202
22 Security	.921*	-.076	-.029	-.053	-.041	.069
23 Prestige	.027	.530*	.243	.461*	-.384	-.211
24 Economic Returns	.017	.796*	.011	-.052	-.126	.064
25 Surroundings	-.125	-.208	-.901*	-.002	.052	-.108
26 Associates	-.090	.055	-.077	-.917*	-.065	-.195
27 Variety	.071	-.297	.021	.074	.866*	-.033
28 Follow Father	-.074	.051	.009	.154	.015	.954*

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

AUSTIN MEXICAN-AMERICAN - 10 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	.258.	.778*
Item 2 Passive Coping	.044	.874*
Item 3 Active Defensive	.889*	.052
Item 4 Passive Defensive	.818*	.248

AUSTIN MEXICAN-AMERICAN - 14 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	.780*	-.074
Item 2 Passive Coping	.876*	.088
Item 3 Active Defensive	-.249	.781*
Item 4 Passive Defensive	.271	.802*

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

AUSTIN MEXICAN-AMERICAN - 10 Year Olds

Factor Abbreviation	Stage I Designation	NAME
C(SC)	1	Copes with Anxiety with Neutral, not Negative Affect
C(SC)	2	Copes with Aggression with Positive, not Neutral Affect
C(SC)	3	Copes with Task Achievement
C(SC)	4	Copes with Interpersonal Relations with Neutral, not Negative Affect
C(SC)	5	Copes with Authority with Neutral, not Negative Affect
C(SC)	6	Confronts Authority with Positive Affect; Positive Affect toward Task Achievement
C(SC)	7	Neutral, not Negative Affect toward Task Achievement
C(SC)	8	Confronts and Engages Interpersonal Relations
C(SC)	9	Positive Attitude toward Authority, Interpersonal Relations and Task Achievement
C(SC)	10	Confronts and Engages Aggression without Positive Affect toward Interpersonal Relations
OVAL	11	Values Altruism, Esthetics, Independence, Management, Success, Self-Satisfaction, Intellectual Stimulation and Security.
OVAL	12	Values Prestige and Economic Returns; does not value Creativity
OVAL	13	Values Creativity, not Surroundings
OVAL	14	Values Prestige, not Associates
OVAL	15	Values Variety, not Esthetics
OVAL	16	Values Following Father's Occupation
C(SAI)	17	Shows defensive behavior
C(SAI)	18	Copes effectively

Table 12

SIGNIFICANT SEX DIFFERENCES*

AUSTIN MEXICAN-AMERICAN - 10 Year Olds

			Probability Level
OVAL 13	M > F**	Values Creativity; doesn't value Surroundings	p < .004
OVAL 16	M > F	Values Following Father's Occupation	p < .001

---

* 2/18 (11%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

Table 16a..

Stage I

REGRESSION ANALYSIS

AUSTIN MEXICAN-AMERICAN - 10 Year Olds   CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SAI)18	9.58	.003	.35	.13	.13
-C(SAI)17	5.55	.021	.44	.19	.07
- OVAL 14	7.73	.007	.53	.28	.09
ED ASP	5.96	.017	.58	.34	.06
RAVEN	36.38	.001	.76	.58	.24
BRS	6.65	.012	.79	.62	.04

Addi[illegible]al Explanatory Variables:

	pr	p	r	p
C(SC)8	.25	.042		

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN MEXICAN-AMERICAN - 10 Year Olds   CRITERION: Reading Achievement

Predictor
Variables:

C(SAI)18 = Copes effectively

-C(SAI)17* = Does not show defensive behavior

- OVAL 14 = Values Prestige; doesn't value Associates

ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)8 = Copes with Interpersonal Relations via Stance and Engagement

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

AUSTIN MEXICAN-AMERICAN - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)8	5.54	.021	.28	.08	.08
OCC ASP	2.63	.110(NS)	.33	.11	.04
RAVEN	1.19	.279(NS)	.36	.13	.02
BRS	5.06	.028	.44	.19	.06

Additional Explanatory Variables:

	pr	p	r	p
-OVAL 13	-.26	.036		

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN MEXICAN-AMERICAN - 10 Year Olds   CRITERION: Math Achievement

Predictor
Variables:

C(SC)8 = Copes with Interpersonal Relations via Stance and Engagement

OCC ASP = Occupational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

- OVAL 13*= Does not value Creativity; values Surroundings

---

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

AUSTIN MEXICAN-AMERICAN - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SAI)13	5.82	.019	.28	.08	.08
-C(SC)10	4.76	.033	.38	.14	.06
-C(SAI)17	4.07	.048	.44	.19	.05
RAVEN	10.96	.002	.56	.31	.12
BRS	12.33	.001	.65	.42	.11

Additional Explanatory Variables

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN MEXICAN-AMERICAN - 10 Year Olds CRITERION: Grade Point Average

C(SAI)18 = Copes effectively

-C(SC)10* = Does not cope with Aggression via Stance and Engagement; Positive Affect toward Interpersonal Relations

-C(SAI)17 = Does not show defensive behavior

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scale

Additional Explanatory Variables:

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* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

Stage I

PERCENT OF VARIANCE EXPLAINED

AUSTIN MEXICAN-AMERICAN - 10 Year Olds

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	24.2%	1.6%	11.8%
Coping/Motivation	32.5%	9.7%	13.6%
Total	58.2%	12.8%	31.1%

AUSTIN MEXICAN-AMERICAN 14 YEAR OLDS - RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Austin Mexican-American 14 year old students from the 1965 (Stage I) sample. The results include factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. An analysis of sex differences is then described. Finally, the regression analyses are delineated, in order to show the specific factors that predict and explain achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analysis of the Sentence Completion variables resulted in ten factors which accounted for a substantial percentage of the variance. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The analysis appears in Table 1. There are four general factors: coping with aggression, anxiety, interpersonal relations, and task achievement. Variables in the fifth behavior area, authority, loaded on two factors, C(SC)5 and C(SC)8. The first corresponds to coping effectiveness with neutral, not negative affect; the latter can best be described as coping effectively with authority via stance and engagement, with positive affect. Unit weights were constructed using those variables having a factor loading ($\geq$ .40). For example, factor 1 consists of all five variables dealing with coping with anxiety. Factors 7 and 9 were the only ones that included more than one behavior area.

Occupational Values

Factor analysis of the Occupational Values variables yielded six factors. Once again, variables having a factor loading $\geq$ .40 were used to construct a unit weighted score for each factor (see analysis in Table 4).

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) is illustrated in Table 9. This is a self-report measure of coping effectiveness. Two factors emerged: Positive coping; and ineffective, defensive responding.

The individual factors of the Sentence Completion, Occupational Values, and Social Attitudes Inventory instruments are described in Table 11.

SEX DIFFERENCES

Sex differences are listed in Table 12. Males coped more effectively with Interpersonal Relations and with authority. Females, on the other hand, were better copers in the area of task achievement and expressed more positive, not neutral affect toward task achievement. In a work setting, males placed greater value on following father's occupation and less value on esthetics than did females.

SUMMARY OF REGRESSION ANALYSES

Predictors of reading achievement are listed in Tables 16a and 16b. Good readers reported less defensive responding than poorer readers. In future work, good readers placed greater value on associates and success, and less value on intellectual stimulation, variety, and esthetics. In addition, better readers had higher aptitude scores and higher aspirations for both career and education than did poorer readers.

Math Achievement

Students who were good math reported less defensive responding than poorer students. In a work setting, they placed greater value on associates and less on intellectual stimulation and variety. In addition, better math students had higher aptitude scores and higher aspirations for both career and education.

Grade Point Average

Students who received good grades expressed more positive attitudes toward authority and interpersonal relations than less successful students. At the same time, however, they expressed less positive affect in coping with authority. In addition, these successful students tended to cope with interpersonal relations via engagement, actively tackling the problem. More successful students had higher aptitude and higher educational and occupational aspirations. They also were rated highly by their peers on the Behavior Rating Scale.

In general, aptitude and aspirations were predictive of success on all three criteria. Occupational Values factor 13, valuing associates but not intellectual stimulation or variety, was predictive of both reading and math achievement. Defensive responding on the SAI was also negatively associated with these two achievement criteria. Another interesting pattern, common to several other samples, was characteristic of this Austin Mexican-American 14 year old sample. That is, peer ratings (BRS) were highly predictive of GPA, but not at all of the achievement criteria. It appears that students are able to differentiate their peers along certain behavioral dimensions which strongly influence teachers' assigning of grades, but which are not related to achievement test performance.

PERCENTAGE OF VARIANCE

It is also important to consider the percent of variance accounted for by aptitude and coping/motivation variables, respectively, in accounting for success on the criterion measures. These are listed in Table 22. Aptitude is not an especially powerful predictor in this sample. Surprisingly, more of the variance is explained by aptitude in GPA than in the achievement criteria; 4% for math and reading, and 9% for GPA.

The coping/motivation factors are considerably stronger predictors, uniquely accounting for 23% of the variance in reading, 18% in math, and a lesser 9% in GPA. Taken together with aptitude (the "Total" percentages) the coping/motivation factors are important predictors of success for Austin Mexican-American 14 year olds. They show a much stronger relationship to objectively measured achievement than to teacher grades. Teacher grades correlate .42 with reading and .39 with math scores.

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Table 1

STAGE I

SENTENCE COMPLETION

AUSTIN MEXICAN-AMERICAN - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
39 Att. - Authority	.079	.334	.027	.081	.088	.087	.629*	.103	-.102	.114
40 Att. - Interpersonal Relations	.202	.071	-.001	.042	-.008	.011	.778*	.065	.084	.000
41 Att. - Task Achievement	.098	.291	-.012	.156	.141	.282	.210	.132	-.491*	.006
43 Aggression - Stance	-.080	.839*	.113	.086	.131	.092	-.000	-.040	.111	.190
44 Aggression - Engagement	-.234	.694*	.020	.154	.158	.095	.222	-.112	.057	.173
45 Aggression - Coping Eff.	.028	.948*	.144	-.004	.103	.005	.053	.039	-.056	-.021
46 Aggression - Negative Aff.	-.162	-.902*	-.112	.065	-.067	.045	-.027	-.055	.090	.127
47 Aggression - Pos. Affect	.162	.902*	.112	-.065	.067	-.045	.027	.055	-.090	-.127
48 Authority - Stance	-.028	.077	.203	.136	.181	.134	.079	.763*	.010	.207
49 Authority - Engagement	-.020	-.105	.062	.055	.135	-.205	.162	.725*	-.241	-.106
50 Authority - Coping Eff.	.152	.262	.228	.086	.676*	.059	.060	.520*	.025	.119
51 Authority - Negative Aff.	-.277	-.307	-.185	.052	-.839*	.053	-.001	-.128	.063	-.003
52 Authority - Neutral Aff.	.251	.283	.171	-.076	.864*	-.035	.065	.056	-.112	.012
53 Authority - Pos. Affect	.172	.159	.096	.151	-.138	-.113	-.415*	.461*	.315	-.055
54 Anxiety - Stance	.915*	.016	.086	.018	-.033	-.034	.042	.066	-.046	.025
55 Anxiety - Engagement	.817*	-.011	.089	-.056	-.011	-.004	.014	.109	-.062	-.036
56 Anxiety - Coping Eff.	.911*	.042	.070	.039	.100	-.062	.061	.002	.026	.017
57 Anxiety - Negative Aff.	-.891*	-.036	-.031	-.022	-.173	-.045	-.062	.087	-.017	-.004
58 Anxiety - Neutral Aff.	.891*	.036	.031	.022	.173	.045	.062	-.087	.017	.004

STAGE I

SENTENCE COMPLETION

AUSTIN MEXICAN-AMERICAN - 14 Year Olds (continued)

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Facto 10
59 Interpersonal Relations - Stance	-.004	.167	.469*	.212	.365	-.018	-.029	-.010	.416*	-.176
60 IPR - Engagement	.078	.144	.344	.127	-.109	-.182	.426*	.179	.387	-.327
61 IPR - Coping Eff.	.006	.176	.905*	.074	.095	-.038	.060	.153	.058	.049
62 IPR - Negative Affect	-.185	-.152	-.911*	-.001	-.114	-.028	.008	-.065	.100	-.129
63 IPR - Neutral Affect	.185	.147	.908*	-.002	.111	.047	-.019	.053	-.101	-.006
64 IPR - Positive Affect	.015	.047	.104	.022	.028	-.113	.070	.084	-.007	.874
65 Task Achievement -Stance	-.012	.049	.091	.928*	.004	-.012	.011	.080	-.115	.044
66 Task Ach. - Engagement	-.023	-.065	-.081	.877*	-.026	-.129	.109	.029	.126	-.005
67 Task Ach. - Coping Eff.	.075	.090	.117	.928*	-.022	.049	-.007	.093	-.178	-.017
68 Task Ach. - Negative Aff.	-.069	-.118	-.240	-.301	-.078	.279	.148	-.127	.687*	.067
69 Task Ach. - Neutral Aff.	.042	.011	.097	.191	.058	-.883*	-.100	.092	-.332	.024
70 Task Ach. - Pos. Affect	.010	.098	.102	.037	-.000	.884*	-.011	.001	-.223	-.096

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*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 4

STAGE I

OCCUPATIONAL VALUES

AUSTIN MEXICAN AMERICAN - 14 Year Olds

Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	-.062	.776*	.013	.020	-.091	-.385
15 Esthetics	-.018	-.088	-.173	-.858*	.171	-.072
16 Independence	-.058	-.034	-.093	.084	-.053	.887*
17 Management	-.334	.428*	-.147	.205	-.369	-.327
18 Success	-.062	.002	-.104	-.024	-.854*	.079
19 Self-Satisfaction	.778*	.212	.033	-.086	.129	-.099
20 Intellectual Stimulation	-.028	.249	.777*	.108	.056	.060
21 Creativity	-.598*	-.111	.285	.106	-.057	-.025
22 Security	.756*	-.045	-.124	.164	-.287	-.101
23 Prestige	-.391*	-.713*	-.002	-.141	.001	-.134
24 Economic Returns	-.084	-.732*	-.337	.159	-.045	-.138
25 Surroundings	.525	-.172	.135	-.072	.421*	.287
26 Associates	.135	.362	-.559*	-.021	.256	.259
27 Variety	-.185	.104	.693*	.040	.353	-.066
28 Follow Father	-.174	-.071	-.019	.649*	.445*	-.000

---

*These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 9

Stage I

SOCIAL ATTITUDES INVENTORY

AUSTIN MEXICAN-AMERICAN - 14 Year Olds	Factor 17 Loading	Factor 18 Loading
Item 1 Active Coping	.780*	-.074
Item 2 Passive Coping	.876*	.088
Item 3 Active Defensive	-.249	.781*
Item 4 Passive Defensive	.271	.802*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

AUSTIN MEXICAN-AMERICAN 14 Year Olds

Factor Abbreviation	Stage I Designation	NAME
C(SC)	1	Copes with Anxiety
C(SC)	2	Copes with Aggression
C(SC)	3	Copes with Interpersonal Relations
C(SC)	4	Copes with Task Achievement
C(SC)	5	Copes effectively with Authority with Neutral, not Negative Affect
C(SC)	6	Positive, not Neutral Affect toward Task Achievement
C(SC)	7	Positive Attitude toward Authority and Interpersonal Relations; lack of Positive Affect toward Authority; Engages Interpersonal Relations.
C(SC)	8	Copes effectively with Authority via Stance and Engagement, with Positive Affect.
C(SC)	9	Negative Attitude and Negative Affect toward Task Achievement; copes with Interpersonal Relations via Stance
C(SC)	10	Positive Affect toward Interpersonal Relations
OVAL	11	Values Self-Satisfaction and Security; doesn't value Creativity and Prestige
OVAL	12	Values Altruism and Management; doesn't value Prestige and Economic Returns
OVAL	13	Values Intellectual Stimulation and Variety; doesn't value Associates
OVAL	14	Values Following Father's Occupation; doesn't value Esthetics
OVAL	15	Values Surroundings and Following Father's Occupation; doesn't value Success
OVAL	16	Values Independence
C(SAI)	17	Copes effectively
C(SAI)	18	Shows defensive behavior

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

AUSTIN MEXICAN-AMERICAN 14 Year Olds

Factor Abbreviation	Stage I Designation	NAME
C(SC)	1	Copes with Anxiety
C(SC)	2	Copes with Aggression
C(SC)	3	Copes with Interpersonal Relations
C(SC)	4	Copes with Task Achievement
C(SC)	5	Copes effectively with Authority with Neutral, not Negative Affect
C(SC)	6	Positive, not Neutral Affect toward Task Achievement
C(SC)	7	Positive Attitude toward Authority and Interpersonal Relations; lack of Positive Affect toward Authority; Engages Interpersonal Relations
C(SC)	8	Copes effectively with Authority via Stance and Engagement, with Positive Affect
C(SC)	9	Negative Attitude and Negative Affect toward Task Achievement; copes with Interpersonal Relations via Stance
C(SC)	10	Positive Affect toward Interpersonal Relations
OVAL	11	Values Self-Satisfaction and Security; doesn't value Creativity and Prestige
OVAL	12	Values Altruism and Management; doesn't value Prestige and Economic Returns
OVAL	13	Values Intellectual Stimulation and Variety; doesn't value Associates
OVAL	14	Values Following Father's Occupation; doesn't value Esthetics
OVAL	15	Values Surroundings and Following Father's Occupation doesn't value Success
OVAL	16	Values Independence
C(SAI)	17	Copes effectively
C(SAI)	18	Shows defensive behavior

Table 16a.

Stage I

REGRESSION ANALYSIS

AUSTIN MEXICAN-AMERICAN - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	P	Multiple R	R^2	R^2 Change
-C(SAI)18	8.88	.004	.30	.09	.09
-OVAL 13	7.89	.006	.40	.16	.07
-OVAL 15	2.49	.118*	.43	.19	.02
OVAL 14	3.70	.058	.47	.22	.03
OCC ASP	10.18	.002	.55	.30	.08
ED ASP	4.55	.036	.58	.34	.04
RAVEN	5.81	.018	.62	.38	.04
BRS	.18	.675 (NS)			

---

* A suppressor effect operates because of the loading of "Following Father" on both Factors 14 and 15. When these factors show opposite signs in the regression solution, it tends to cancel out the significance of the common variable, "Follow Father."

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN MEXICAN-AMERICAN - 14 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

-C(SAI)18[**] = Does not show defensive responding

-OVAL 13 = Values Associates; doesn't value Intellectual Stimulation or Variety

-OVAL 15 = Values Success; doesn't value Surroundings (or Following Father's occupation)[*]

OVAL 14 = (Values Following Father's occupation)[*]; doesn't value Esthetics

OCC ASP = Occupational Aspiration

ED ASP = Educational Aspiration

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

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[*] "Following Father" is probably best ignored, since it has opposite signs in these two cases, and is only a weaker, secondary component of the factor in each case.

[**] Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

AUSTIN MEXICAN-AMERICAN - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
-C(SAI)18	8.03	.006	.29	.08	.08
-OVAL 13	6.68	.011	.38	.15	.06
OCC ASP	17.76	.001	.54	.29	.14
RAVEN	5.39	.023	.58	.33	.04
BRS	2.05	.156 (NS)			

Additional Explanatory Variables:

	pr	p	r	p
ED ASP	.31	.004		

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN MEXICAN-AMERICAN - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:

-C(SAI)18[*] = Does not show defensive responding

-OVAL 13 = Values Associates; doesn't value Intellectual Stimulation or Variety

OCC ASP = Occupational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

Additional Explanatory Variables:

ED ASP = Educational Aspirations

---

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a.

Stage I

REGRESSION ANALYSIS

AUSTIN MEXICAN-AMERICAN - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)7	8.26	.005	.29	.08	.08
OCC ASP	4.53	.036	.36	.13	.04
RAVEN	10.04	.002	.47	.22	.09
BRS	37.70	.001	.67	.45	.24

Additional Explanatory Variables:

	pr	p	r	p
ED ASP	.23	.029		

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

AUSTIN MEXICAN-AMERICAN - 14 Year Olds CRITERION: Grade Point Average

Predictor
Variables:

C(SC)7 = Positive attitudes toward Authority and Interpersonal Relations lack of positive Affect toward Authority; copes with Interpersonal Relations via Engagement.

OCC ASP = Occupational Aspirations

RAVEN = Raven Progressive Matrices

BRS = Behavior Rating Scales

Additional Explanatory Variables:

ED ASP = Educational Aspirations

Table 22

PERCENT OF VARIANCE EXPLAINED

AUSTIN MEXICAN-AMERICAN 14 Year Olds -- Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	4%	4%	9%
Coping/Motivation (unique)	23%	18%	9%
Total	38%	33%	22%

Table 23

CORRELATIONS AMONG THE CRITERIA

AUSTIN MEXICAN-AMERICAN 14 Year Olds -- Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.61		.39
GPA	.42		

JAPAN - 10 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Japanese 10 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The first results presented are the factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, and the Social Attitudes Inventory. The factor comparison findings are then presented, indicating the degree of correspondence between the two samples of Japanese students. Sex and socioeconomic status differences are described next. Finally, the findings from the regression analyses are presented, showing the specific factors that predicted and explained achievement for these students.

FACTOR ANALYSES

Sentence Completion

Factor analyses of the Sentence Completion variables for both Stages I and III resulted in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authortity variables on another. The Stage I analysis appears in Table 1. There were three general factors, corresponding to coping with aggression, anxiety, and task achievement. All included neutral, not negative affect in responding to the problem. Also, there were two factors each for authority and interpersonal relations, one containing stance, engagement and coping effectiveness and the other containing coping effectiveness and the effect variables. Unit weights were constructed for each factor using those variables having a factor loading $\geq$ .40. For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 8-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same pattern, with five major factors corresponding to each of the respective behavioral areas.

As these factors appeared to be yielding similar results, a comparison of the first five factors was made (see Table 3). These factors were highly similar, with respective percentages of common variables across stages of 100%, 100%, 80%, 60%, and 75%. Some of the variables which did not load higher than .40 on both stages still showed similar direction. While the program RELATE could not be used, due to slightly different numbers of variables in the two stages, these five factors were considered "identical," and indicated a stable Japanese construct system at age 10, that defined coping skills in each of the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\geq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that only one of the six factors was "similar," having a cosine of .8 or better (interpreted similar to a correlation coefficient). Table 7 depicts the item comparison of this one factor across the two stages. The results of this comparison indicated very little similarity in value constructs across time for Japanese 10 year old students.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: Positive coping and ineffective or defensive responding.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10, and one factor emerged. This factor described effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made for the Sentence Completion and Occupational Values instruments, which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 is designed to show the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content, as described earlier. The first five factors were extremely similar and were referred to as "identical" factors. These factors received the Roman numeral designation indicated in Table 11.

The Occupational Values instruments were compared with the RELATE factor comparison method. One of these factors was called "similar" (RELATE value of .80 to .90) and received an alphabetic designation. For example, similar factor "A" consisted of original factors OVAL 16 in Stage I and OVAL 15 in Stage III. The factors unique to either sample are listed after the "common" factors in Table 11.

In the Japanese 10 year old sample, the first five Sentence Completion factors were identical across stages. There were no "identical" factors in the Occupational Values comparison, only one of the six factors was similar ($\geq .80$). While the Sentence Completion factors were quite similar the values pattern has shifted dramatically in the Japanese 10 year old sample.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Thirty-eight percent of the factors showed sex differences. Females coped with authority better than males. On Occupational Values there were many differences. Males valued independence and management rather than surroundings more than females. Females more than males preferred surroundings and associates rather than creativity. Valuing altruism rather than prestige, success or economic returns was preferred more by the girls. The boys placed more value on security rather than esthetics than girls. Males more than females sought to follow their father's occupation. Males reported more defensive behavior.

In Stage III, twenty-three percent of the factors had differences due to sex. Females coped better with interpersonal relations than males. Girls also had more depressive affect toward interpersonal relations and authrotiy. In values, males differed from females in valuing independence, management and economic returns more than esthetics. Males preferred creativity rather than self-satisfaction more than females.

There were no consistent sex differences across the two samples, indicating a highly variable set of differences due to sex in the Japanese 10 year old population.

SES DIFFERENCES

Stage I results of socioeconomic differences appear in Table 14. Middle-class students coped with aggression better than lower-class students. The middle-class children also dealt with authority more effectively and had more positive attitude twoard task achievement than lower-class children. On Occupational Values, middle-class students placed more value on self-satisfaction, intellectual stimulation and variety than management or economic returns. Lower-class children preferred security over esthetics more than middle-class students.

In Stage III (Table 15), twenty-nine percent of the factors showed socioeconomic status differences. Lower-class students coped better with aggression whereas middle-class students handled task achievement problems more successfully. On values, lower class preferred security and surroundings more than middle-class children. Middle-class students placed value on independence and self-satisfaction rather than following father's occupation more than middle-class students. There were no consistent differences across samples due to socioeconomic status. Coping and value patterns associated with SES were highly variable.

SUMMARY OF REGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement in Stage I appear in Tables 16a and 16b. Good readers coped well with authority and did not respond defensively. They did not, on the other hand, independently confront or engage themselves when faced with achievement tasks. They did deal with interpersonal relations effectively. Valuing self-satisfaction, intellectual stimulation and variety rather than management or economic returns was characteristic of students with high reading scores. They also preferred not to follow their father's occupation. These students valued altruism rather than success, prestige or economic returns. They had high educational aspirations, and high aptitude scores. Their peers rated them as good copers. Additional correlates of reading achievement were high occupational aspirations and positive attitudes toward task achievement. Valuing independence and management, rather than surroundings, was also correlated with reading achievement.

The predictors in Stage III of reading achievement are presented in Tables 17a and 17b. These students reported good coping with all of the problem areas. They valued independence and satisfaction rather than following their father's occupation. Good readers also valued intellectual stimulation and variety rather than success, prestige or economic returns. They did not care so much about security or surroundings. Aptitude and educational aspirations predicted reading achievement scores, as did peer ratings of their academic coping skill. Other correlates of reading included high occupational aspirations, and valuing creativity rather than self-satisfaction.

Consistent predictors across both samples included not wishing to follow father's occupation, and having high educational aspirations. Peer ratings and aptitude were also reliable predictors of good reading achievement. Occupational aspirations were correlated with reading in both samples.

Math Achievement

Predictors of math achievement for Stage I appear in Tables 18a and 18b. Good students of math had positive attitudes toward task achievement and coped well with aggression and authority. These students valued altruism rather than success, prestige or economic returns. They did not wish to pursue the same occupation as their fathers, and they valued esthetics rather than security. Students who received high math scores also preferred self-satisfaction, intellectual stimulation and variety rather than management or economic returns. Educational aspirations and aptitude were further predictors of math. Peers rated these students as good copers. Another correlate of math achievement was the ability to cope with interpersonal relations with neutral, not negative affect.

In the Stage III sample (Tables 19a and 19b), students with good math scores reported coping effectively with all problems. These students valued independence and self-satisfaction rather than pursuing their father's occupation. Likewise, they preferred intellectual stimulation and variety to success, prestige and economic returns. Educational aspirations and aptitude predicted math scores. Peers rated these students as good copers. Valuing independence, management and economic returns rather than esthetics was also correlated with math scores.

Comparing across samples, not wishing to follow father's career was predictive in both samples. Aptitude, and educational aspirations were also consistently related to math achievement, as were the peer coping ratings.

Grade Point Average

Predictors of GPA in Stage I appear in Tables 20a and 20b. Students who achieved high grades had positive attitudes toward task achievement. They coped well with authority and interpersonal relations, and reported little defensive behavior. They did not wish to pursue their father's occupation and preferred altruism to success, prestige or economic returns. These students also valued esthetics rather than security. Both aptitude and educational aspirations were predictors, and peers rated these students as good copers. Additional correlates of GPA included coping with aggression, and coping with authority with a neutral, not negative affect. Positive attitudes toward authority and toward interpersonal relations (though with a lack of positive affect about interpersonal issues) were correlated with GPA. Finally, occupational aspirations, and valuing self-satisfaction, intellectual stimulation and variety rather than management or economic returns, were positively correlated with teacher grades.

In Stage III, the predictors of GPA were as follows (Tables 21a and 21b). Those students who reported coping effectively achieved high grades. Further, those students with depressive affect about interpersonal problems and about authority received high grades. These students valued intellectual stimulation and variety rather than success, prestige or economic returns. They also valued independence and self-satisfaction rather than following father's occupation. High aptitude scores, educational aspirations, and peer coping ratings also predicted grades positively.

Consistent predictors across both samples that related to GPA included not desiring to follow father's occupation, high educational aspirations, high aptitude, and good coping ratings from peers.

PERCENTAGE OF VARIANCE

In order to assess the practical usefulness of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivational variables. The unique variance of both aptitude and coping/motivation variables was that increment of variance obtained beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

In the first sample, aptitude uniquely accounted for 9.0% of reading, 9.6% of math and 5.7% of GPA. The unique amount accounted for by coping/motivation was 17.1%, 10.5% and 15.2% for reading, math and GPA, respectively. The total percentage explained by aptitude and coping, combined, ranged from 28% to 33% of the variance.

In the second sample, aptitude uniquely accounted for 9.8%, 12.3%, and 8.9% of the reading, math, and GPA variance, respectively. The coping/motivation variables uniquely accounted for 14.1% of reading, 9.8% of math, and 10.9% of GPA. The total variance attributable to aptitude and coping/motivation, combined, again ranged from 28% to 33%. The results in both samples showed that these characteristics had substantial power to explain school achievement.

Table 1

STAGE I

SENTENCE COMPLETION

JAPAN - 10 Year Olds		Loadings									
Item		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
39	Attitude - Authority	-.001	.005	.152	-.011	.220	.072	.167	.117	-.049	.577
40	Att. - Interpersonal Relations	.059	.063	-.003	.029	.054	-.027	-.060	.103	-.077	.700
41	Att. - Task Achievement	.135	.060	.177	.123	.269	.049	.042	.418*	-.009	.269
43	Aggression - Stance	.050	.935*	.025	.005	.065	-.005	.047	.079	-.017	.017
44	Aggression - Engagement	.031	.796*	.019	-.016	.021	-.105	.052	.104	-.024	.041
45	Aggression - Coping Eff.	.049	.964*	.040	.045	.056	.037	.022	.027	-.011	.015
46	Aggression - Neg. Affect	-.031	-.866*	-.031	-.084	-.020	-.161	.040	.105	-.019	-.023
47	Aggression - Pos. Affect	.031	.866*	.031	.084	.020	.161	-.040	-.105	.019	.023
48	Authority - Stance	.061	.087	.073	.009	.734*	.236	.078	.100	-.037	.211
49	Authority - Engagement	.022	-.015	.027	.086	.703*	.059	-.047	-.143	-.050	.018
50	Authority - Coping Eff.	.064	.139	.077	.082	.804*	.412*	.042	.088	.008	.097
51	Authority - Neg. Affect	-.072	-.137	-.066	-.152	-.311	-.869*	.015	-.028	-.011	.001
52	Authority - Neutral Aff.	.055	.119	.054	.149	.027	.964*	-.008	.004	-.005	.044
53	Authority - Pos. Affect	.038	.035	.026	-.005	.734*	-.328	-.017	.061	.043	-.122
54	Anxiety - Stance	.944*	.021	.091	.013	.046	.004	-.033	.027	.003	.020
55	Anxiety - Engagement	.810*	.005	.059	-.002	-.036	-.086	.026	-.011	-.010	.080
56	Anxiety - Coping Eff.	.834*	.002	.056	.079	.087	.080	-.033	.054	.022	-.063
57	Anxiety - Neg. Affect	-.948*	-.083	-.017	-.011	-.036	-.059	-.013	.019	-.019	.018
58	Anxiety - Neutral Aff.	.948*	.083	.017	.011	.036	.059	.013	-.019	.019	-.018

STAGE I

SENTENCE COMPLETION

JAPAN - 10 Year Olds (continued)		Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
59	Interpersonal Relations - Stance	.003	.052	.058	.104	-.063	.025	.785*	.026	.081	-.031
60	IPR - Engagement	-.013	-.016	.038	.113	.091	-.047	.832*	-.035	-.106	.088
61	IPR - Coping Eff.	.000	.109	.110	.811*	.132	.058	.387*	-.010	.004	.086
62	IPR - Negative Affect	-.066	-.063	-.095	-.969*	-.049	-.116	-.011	-.012	-.007	.016
63	IPR - Neutral Affect	.058	.066	.097	.969*	.040	.118	.010	-.008	.023	.035
64	IPR - Positive Affect	.081	-.035	-.025	-.040	.092	-.020	.010	.233	-.169	-.563*
65	Task Achievement - Stance	.068	.005	.556*	-.006	.042	-.000	.054	.048	.755*	.059
66	Task Ach. - Engagement	.016	-.025	.053	.030	-.075	.000	-.051	-.052	.906*	-.023
67	Task Ach. - Coping Eff.	.053	.048	.766*	.031	.091	-.000	.107	.212	.368	.100
68	Task Ach. - Neg. Affect	-.120	-.068	-.921*	-.138	-.063	-.069	-.012	-.145	.002	-.044
69	Task Ach. - Neutral Aff.	.127	.069	.885*	.155	.081	.060	.024	-.331	.000	.059
70	Task Ach. - Pos. Affect	-.022	-.008	-.005	-.045	-.039	.011	-.024	.910*	-.007	-.033

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

						Loadings				
JAPAN - 10 Year Olds	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.105	.134	.164	.114	.318	.075	.177	.383	.200	.454*
65 T.A. - Stance	.178	.254	.054	.870*	.145	.068	.069	-.012	-.034	-.056
66 T.A. - Engagement	.100	.227	-.057	.852*	.087	-.005	.031	.007	.028	.126
67 T.A. - Aid/Advice	.091	.175	-.085	.830*	.139	.029	.016	.039	.063	.126
68 T.A. - Coping Effect	.204	.193	.058	.770*	.202	.140	.120	.237	.062	-.116
69 T.A. - Hostile Affect	-.130	-.113	-.190	-.270	-.104	-.106	-.004	-.571*	.025	.460*
70 T.A. - Depressive Aff.	-.116	-.143	-.083	-.765*	.014	-.035	.002	.361	.133	-.161
71 T.A. - Neutral Aff.	.153	.144	.194	.822*	.060	.091	-.010	.045	-.121	-.235
72 T.A. - Positive Aff.	.105	.220	-.066	-.257	-.040	.013	.055	.092	.005	.465*
73 Interpersonal Relations Attitude	-.112	-.051	.095	.119	.144	-.022	.610*	-.039	.023	.265
74 I.R. - Stance	.041	.850*	.127	.144	.113	-.009	-.087	-.008	-.171	-.031
75 I.R. - Engagement	.121	.913*	.089	.131	.090	.027	-.065	-.065	.021	.035
76 I.R. - Aid/Advice	.111	.911*	.095	.134	.089	.035	-.061	-.069	.013	.047
77 I.R. - Coping Effect	.018	.903*	.138	.276	.081	.077	.083	.087	-.026	-.064
78 I.R. - Hostile Affect	.081	-.655*	-.242	-.303	-.038	-.171	-.171	-.173	-.199	.087
79 I.R. - Depressive Aff.	-.169	-.179	.046	-.051	-.121	.128	.005	-.019	.719*	-.072
80 I.R. - Neutral Aff.	.013	.713*	.204	.313	.099	.094	.159	.173	-.193	-.044
81 I.R. - Positive Aff.	.000	.000	-.000	-.000	-.000	.000	-.000	-.000	.000	-.000

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

JAPAN - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.267	.168	.234	.203	.183	.064	.448*	-.017	.245	-.028
83 Auth. - Stance	.153	.039	.056	.212	.753*	.298	.084	.091	.046	-.043
84 Auth. - Engagement	.026	.167	.019	.092	.882*	-.037	-.007	-.052	-.151	-.022
85 Auth. - Aid/Advice	.089	.152	.037	.138	.900*	-.004	-.033	.006	-.068	.015
86 Auth. - Coping Eff.	.081	.142	.113	.244	.762*	.413*	.142	.018	.033	-.084
87 Auth. - Hostile Aff.	.009	-.202	-.123	-.141	-.198	-.802*	-.068	.071	-.198	.107
88 Auth. - Depress. Aff.	-.133	.043	.073	-.186	-.181	-.279	.373	-.035	.402*	-.276
89 Auth. - Neutral Aff.	.060	.158	.073	.221	.270	.859*	-.130	-.046	-.029	.046
90 Auth. - Positive Aff.	.000	.000	-.000	-.000	.000	.000	-.000	.000	-.000	-.000
91 Anxieth - Attitude	.046	-.159	.065	-.070	-.207	.238	.004	.022	-.011	.470*
92 Anx. - Stance	.806*	.003	-.022	.065	.094	.036	-.177	.293	-.088	.070
93 Anx. - Engagement	.826*	.103	-.026	.187	.096	-.134	.027	-.116	.215	-.003
94 Anx. - Aid/Advice	.817*	.028	-.015	.190	.073	-.135	.003	-.127	.245	-.018
95 Anx. - Coping Eff.	.912*	.039	.017	.172	.057	.030	.163	-.036	-.106	-.023
96 Anx. - Hostile Aff.	-.410*	-.088	.005	-.090	.012	.024	-.552*	.153	.015	-.057
97 Anx. - Depressive Aff.	-.745*	-.033	-.079	-.025	.001	-.145	.188	-.223	.249	.006
98 Anx. - Neutral Aff.	.859*	.053	.096	.095	.002	.149	.185	-.089	-.207	-.035
99 Anx. - Positive Aff.	-.030	.085	-.114	-.085	-.031	-.147	-.133	.683*	-.034	.225

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

JAPAN - 10 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	-.018	.058	.518*	.058	.089	-.007	-.567*	-.137	.171	.018
101 Agg. - Engagement	-.028	.137	.863*	.022	.036	-.082	-.146	-.086	.060	.038
102 Agg. - Aid/Advice	-.013	.145	.870*	.045	.092	-.023	-.146	-.054	.116	.080
103 Agg. - Coping Effect	.053	.140	.911*	.107	.067	.091	.093	.043	.005	.029
104 Agg. - Hostile Aff.	-.041	-.115	-.891*	.004	.027	-.083	-.222	-.052	.146	.062
105 Agg. - Depressive Aff.	-.129	.031	.139	.039	.014	-.183	.315	-.070	-.338	-.250
106 Agg. - Neutral Aff.	.070	.111	.884*	-.009	-.031	.125	.159	.069	.076	-.009
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See test for further explanation.

Table 3

ITEM COMPARISON FOR JAPAN 10 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

JAPAN	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	3	3	4	7	2	5	5
64 Task Achievement-Attitude										
65 TA - Stance					.57	.87				
66 TA - Engagement					(.05)	.85				
*67 TA - Aid/Advice						.83				
68 TA - Coping Eff.					.77	.77				
**69 TA - Hostile Aff.					-.92	(-.27)				
**70 TA - Depress. Aff.						-.77				
71 TA - Neutral Aff.					.89	.82				
72 TA - Positive Aff.										
73 Interpersonal Rel. - Attitude										
74 IPR - Stance							.74	.85		
75 IPR - Engagement							.83	.91		
*76 IPR - Aid/Advice								.91		
77 IPR - Coping Eff.							.34	.90		
**78 IPR - Hostile Aff.							(.01)	-.66		
**79 IPR - Depress. Aff.								(-.18)		
80 IPR - Neutral Aff.							(.01)	.71		
81 IPR - Positive Aff.										

Table 3
(continued)

JAPAN	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	3	3	4	4	2	5	5
82 Authority - Attitude										
83 Auth. - Stance									.73	.75
84 Auth. - Engagement									.70	.88
*85 Auth. - Aid/Advice										.90
86 Auth. - Coping Eff.									.81	.76
**87 Auth. - Hostile Aff.										
**88 Auth. - Depress. Aff.										
89 Auth. - Neutral Aff.										
90 Auth. - Positive Aff.									.73	
*91 Anxiety - Attitude										
92 Anx. - Stance	.94	.81								
93 Anx. - Engagement	.81	.83								
*94 Anx. - Aid/Advice		.82								
95 Anx. - Coping Eff.	.83	.91								
**96 Anx. - Hostile Aff.	-.95	-.41								
**97 Anx. - Depressive Aff.		-.75								
98 Anx. - Neutral Aff.	.95	.86								
*99 Anx. - Positive Aff.										

Table 3
(continued)

JAPAN	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	3	3	4	4	2	5	5
100 Aggression - Stance			.94	.52						
101 Agg. - Engagement			.80	.86						
*102 Agg. - Aid/Advice				.87						
103 Agg. - Coping Eff.			.96	.91						
**104 Agg. - Hostile Aff.			-.87	-.89						
**105 Agg. - Depress. Aff.				(.14)						
*106 Agg. - Neutral Aff.				.88						
107 Agg. - Positive Aff.			.87							

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* - This variable was only present in the Stage III instrument.

** - In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable - "Negative Affect."

Table 4

STAGE I

OCCUPATIONAL VALUES

JAPAN - 10 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	-.086	-.352	-.125	.615*	.104	.280
15	Esthetics	-.108	-.086	.086	-.001	-.790*	.190
16	Independence	.025	.808*	.096	.057	-.048	.079
17	Management	-.561*	.424*	-.203	.106	.361	.249
18	Success	-.368	-.185	.007	-.607*	.217	.092
19	Self-Satisfaction	.713*	-.020	.156	-.043	.126	.018
20	Intellectual Stimulation	.620*	.058	-.166	.309	.021	.047
21	Creativity	.091	-.091	-.705*	.188	-.227	-.126
22	Security	.010	-.298	.266	.068	.507*	.061
23	Prestige	-.128	-.126	-.223	-.727*	-.173	.112
24	Economic Returns	-.445*	.340	.050	-.446*	.209	.028
25	Surroundings	-.031	-.401*	.474*	.287	.079	.228
26	Associates	-.011	.075	.633*	.238	-.273	-.159
27	Variety	.621*	.079	-.157	.065	.072	.130
28	Follow Father	-.144	-.062	-.072	.023	.135	-.913*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

JAPAN - 10 Year Olds Item	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
14 Altruism	.097	.133	-.083	.593*	-.166	.032
15 Esthetics	.047	.238	-.849*	-.003	.156	-.119
16 Independence	.127	-.351	.415*	.088	.629*	-.127
17 Management	-.370	-.071	.561*	.121	.121	-.244
18 Success	-.739*	-.221	-.044	.010	-.144	.024
19 Self-Satisfaction	.351	.233	-.092	.199	.402*	-.499*
20 Intellectual Stimulation	.715*	-.166	.009	-.143	.016	.194
21 Creativity	.173	.042	-.061	.187	.145	.852*
22 Security	-.014	.681*	.114	.190	-.141	-.056
23 Prestige	-.631*	-.392	-.024	-.105	.127	.182
24 Economic Returns	-.494*	-.236	.481*	-.424*	-.046	.004
25 Surroundings	.078	.790*	-.019	-.175	.074	.055
26 Associates	.196	.189	-.194	-.737*	-.084	-.082
27 Variety	.720*	-.221	-.112	.012	-.036	.026
28 Follow Father	.048	-.005	.281	.270	-.737*	-.211

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR JAPAN 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.754	-.241	-.369	.207	.124	-.424
12	.178	-.453	.595	-.432	.446	-.019
13	-.024	.549	-.094	-.615	.040	-.570
14	.585	.585	.291	.041	.008	.488
15	-.067	.148	.613	.571	-.182	-.489
16	-.222	.266	-.146	.318	.871*	-.014

---

* Similar factors

Table 7

ITEM COMPARISON FOR JAPAN 10 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES
(Factor Loadings)

	A									
JAPAN	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	16	15								
14 Altruism										
15 Esthetics										
16 Independence	(.08)	.63								
17 Management										
18 Success										
19 Self-Satisfaction	(.02)	.40								
20 Intellectual Stimulation										
21 Creativity										
22 Security										
23 Prestige										
24 Economic Returns										
25 Surroundings										
26 Associates										
27 Variety										
28 Follow Father	-.91	-.74								

---

* These numbers in parentheses are the corresponding loading for each country on those variables that were not used in the unit weighted scores, but load significantly in one country.

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

JAPAN - 10 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	-.223	.773*
2 Passive Coping	.273	.764*
3 Active Defensive	.697*	-.049
4 Passive Defensive	.851*	.078

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

JAPAN - 10 Year Olds	Factor Loading
Sub-Scores	Factor 17
37 Task Achievement	.641*
38 Authority	.703*
39 Aggression	.746*
40 Interpersonal Relations	.649*
41 Anxiety	.445*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

JAPAN - 10 Year Olds

	COMMON FACTORS			
New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1*	1*	Copes with Anxiety
II	C(SC)	2	3	Copes with Aggression
III	C(SC)	3	4	Copes with Task Achievement
IV	C(SC)	7	2	Copes with Interpersonal Relations
V	C(SC)	5	5	Copes with Authority
A	OVAL	16	15	Does not value Following Father's occupation; (Values Independence and Self-Satisfaction.
	UNIQUE FACTORS			
	C(SC)	6	-	Copes effectively with Authority with neutral, not negative Affect
	C(SC)	4	-	Copes effectively with Interpersonal Relations with Neutral not Negative Affect.
	C(SC)	8	-	Positive attitude toward Task Achievement
	C(SC)	9	-	Copes with Task Achievement via Stance and Engagement
	C(SC)	10	-	Positive attitudes toward Authority and Interpersonal Relations with a lack of positive Affect toward Interpersonal Relations
	C(SC)	-	6	Copes effectively with Authority with neutral, not hostile Affect
	C(SC)	-	7	Positive attitude toward Authority; lack of hostile Affect toward Anxiety; does not cope with Aggression via Stance
	C(SC)	-	8	Does not have Hostile Affect toward Task Achievement.
	C(SC)	-	9	Depressive Affects toward Interpersonal Relations and Authority
	C(SC)	-	10	Positive attitude, hostile and positive Affect toward Task Achievement
	OVAL	11	-	Values Self-satisfaction, Intellectual Stimulation, and Variety; doesn't value Management and Economic Returns
	OVAL	12	-	Values Independence and Management; doesn't value Surroundings.
	OVAL	13	-	Values Surroundings and Associates; doesn't value Creativity
	OVAL	14	-	Values Altruism; doesn't value Success, Prestige, and Economic Returns
	OVAL	15	-	Values Security; doesn't value Esthetics
	OVAL	-	11	Values Intellectual Stimulation and Variety; doesn't value Success, Prestige, and Economic Returns
	OVAL	-	12	Values Security and Surroundings
	OVAL	-	13	Values Independence, Management, and Economic Returns; doesn't value Esthetics
	OVAL	-	14	Values Altruism; doesn't value Economic Returns and Associates
	OVAL	-	16	Values Creativity; doesn't value Self-satisfaction
	SAI	17	-	Shows defensive behavior
	SAI	18	-	Copes effectively
	SAI	-	17	Copes effectively

---

* These numbers appear in the Factor Analysis Tables 1, 2, 4, 5

** The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

JAPAN - 10 Year Olds - STAGE I

			Probability Level
C(SC)5-V	F > M**	Copes effectively with Authority via Stance and Engagement with positive Affect	$p < .019$
OVAL 12	F < M	Values Independence and Management; d doesn't value Surroundings	$p < .001$
OVAL 13	F > M	Values Surroundings and Associates; doesn't value Creativity	$p < .001$
OVAL 14	F > M	Values Altruism; doesn't value Success, Prestige and Economic Returns	$p < .054$
OVAL 15	F < M	Values Security; doesn't value Esthetics	$p < .001$
OVAL 16-A	F < M	Follows Father	$p < .001$
[n]C(SAI)17	F < M	Self-report of defensive coping	$p < .001$

---

* 7/18 (38%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[n] = No comparable instrument in the other sample.

Table 13

SIGNIFICANT SEX DIFFERENCES*

JAPAN - 10 Year Olds - STAGE III

			Probability Level
C(SC)2-IV	F > M**	Copes effectively with Interpersonal Relations	$p < .008$
C(SC)9	F > M	Depressive Affect toward Interpersonal Relations and Authority	$p < .047$
OVAL 13	F < M	Values Independence, Management, and Economic Returns; doesn't value Esthetics	$p < .016$
OVAL 16	F < M	Values Creativity; doesn't value Self-satisfaction	$p < .003$

---

* 4/17 (23%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

Table 14

SIGNIFICANT SES DIFFERENCES*

JAPAN - 10 Year Olds - STAGE I

			Probability Level
C(SC)2-II	L < M**	Copes effectively with Aggression via Stance and Engagement with positive, not negative Affect	$p < .051$
C(SC)5-V	L < M	Copes effectively with Authority via Stance and Engagement with positive Affect	$p < .012$
C(SC)8	L < M	Positive attitude toward Task Achievement	$p < .038$
OVAL 11	L < M	Values Self-satisfaction, Intellectual Stimulation, and Variety; doesn't value Management and Economic Returns.	$p < .011$
OVAL 15	L > M	Values Security; doesn't value Esthetics	$p < .001$

---

* 5/18 (27%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

i = An identical SES difference in both samples (Stages I and III)

Table 15

SIGNIFICANT SES DIFFERENCES*

JAPAN - 10 Year Olds - STAGE III

			Probability Level
C(SC)3-II	L > M**	Copes effectively with Aggression	$p < .009$
C(SC)4-III	L < M	Copes effectively with Task Achievement	$p < .023$
OVAL 12	L > M	Values Security and Surroundings	$p < .001$
OVAL 15-A	L < M	Values Independence and Self-satisfaction; doesn't value Following Father's occupation	$p < .042$
OVAL 16	L > M	Values Creativity; doesn't value Self-satisfaction	$p < .036$

---

* 5/17 (29%) of the significance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M - Middle Class

[1] = An identical SES difference in both samples (Stages I and III)

Table 16a.

Stage I

REGRESSION ANALYSIS

JAPAN - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)5-V	22.13	.001	.24	.06	.06
[n]-C(SAI)17	9.51	.002	.29	.08	.02
-C(SC)9	5.58	.019	.31	.10	.01
C(SC)7-IV	3.80	.052	.33	.11	.01
OVAL 11	26.37	.001	.41	.17	.06
[s]OVAL 16-A	10.87	.001	.44	.19	.02
OVAL 14	6.43	.012	.46	.21	.01
[i]ED ASP	14.93	.001	.49	.24	.03
[i]RAVEN	47.16	.001	.57	.33	.09
[i]BRS	53.55	.001	.65	.42	.09

Additional Explanatory Variables:

	pr	p	r	p
C(SC)8			.16	.05
[i]OCC ASP	.13	.011		
OVAL 12	.10	.054		

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

C(SC)5-V = Copes with Authority

[n]-C(SAI)17*= Does not show defensive responding

-C)SC)9* = Does not cope with Task Achievement via Stance and Engagement

C(SC)7-IV = Copes with Interpersonal Relations

OVAL 11 = Values Self-satisfaction, Intellectual Stimulation, and Variety; doesn't value Management and Economic Returns

[s]OVAL 16-A = Doesn't value Following Father's occupation

OVAL 14 = Values Altruism; doesn't value Success, Prestige, and Economic Returns

[i]ED ASP = Educational Aspirations

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scales

Additional Explanatory Variables:

C(SC) 8 = Positive attitude toward Task Achievement

[i]OCC ASP = Occupational Aspirations

OVAL 12 = Values Independence and Management; doesn't value Surroundings

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 17a.

Stage III

REGRESSION ANALYSIS

JAPAN - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)17	3.96	.05	.14	.02	.02
[s]OVAL 15-A	13.98	.001	.30	.09	.07
OVAL 11	14.02	.001	.39	.15	.06
-OVAL 12	5.32	.02	.42	.17	.02
[i]ED ASP	13.72	.001	.48	.23	.06
[i]RAVEN	26.92	.001	.57	.33	.10
[i]BRS	11.68	.001	.61	.37	.04

Additional Explanatory Variables:

	pr	p	r	p
-OVAL 16			-.27	.05
[i]OCC ASP	.14	.05		

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 10 Year Olds CRITERION: Reading Achievement

Predictor Variables:

[n]C(SAI)17 = Copes effectively

[s]OVAL 15-A = Values Independence and Satisfaction; doesn't value Following Father's Occupation.

OVAL 11 = Values Intellectual Stimulation and Variety; doesn't value Success, Prestige, and Economic Returns

-OVAL 12* = Doesn't value Security and Surroundings

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

-OVAL 16 = Does not value Creativity; values Self-Satisfaction

[i]OCC ASP = Occupational Aspiration

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 18a.

Stage I

REGRESSION ANALYSIS

JAPAN - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)8	10.09	.002	.17	.03	.03
C(SC)2-II	6.07	.014	.21	.04	.02
C(SC)5-V	4.23	.040	.23	.05	.01
OVAL 14	17.54	.001	.32	.10	.04
[s]OVAL 16-A	12.45	.001	.36	.13	.03
-OVAL 15	5.99	.015	.38	.14	.01
OVAL 12	3.94	.048	.39	.15	.01
OVAL 11	7.84	.005	.42	.17	.02
[i]ED ASP	9.29	.002	.44	.19	.02
[i]RAVEN	47.33	.001	.54	.29	.10
[i]BRS	36.68	.001	.60	.36	.07

Additional Explanatory Variables:

	pr	p	r	p
C(SC)4			.13	.05

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 10 Year Olds CRITERION: Math Achievement

Predictor
Variables:

C(SC)8 = Positive Attitude toward Task Achievement

C(SC)2-II = Copes with Aggression

C(SC)5-V = Copes with Authority

OVAL 14 = Values Altruism; doesn't value Success, Prestige, and Economic Returns.

[s]OVAL 16-A = Does not value Following Father's Occupation

-OVAL 15* = Values Esthetics; doesn't value Security

OVAL 12 = Values Independence and Management; doesn't value Surroundings.

OVAL 11 = Values Self-Satisfaction, Intellectual Stimulation, and Variety; doesn't value Management and Economic Returns.

[i]ED ASP = Educational Aspirations

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)4 = Copes effectively with Interpersonal Relations with Neutral not Negative Affect.

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 19a.

Stage III

REGRESSION ANALYSIS

JAPAN - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)17	5.86	.02	.17	.03	.03
[s]OVAL 15-A	7.19	.008	.26	.07	.04
OVAL 11	4.48	.04	.30	.09	.02
[i]ED ASP	22.15	.001	.43	.18	.10
[i]RAVEN	32.99	.001	.55	.31	.12
[i]BRS	17.28	.001	.61	.37	.06

Additional Explanatory Variables:

	pr	p	r	p
OVAL 13	.14	.05		

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 10 Year Olds CRITERION: Math Achievement

Predictor Variables:

[n]C(SAI)17 = Copes effectively

[s]OVAL 15-A = Values Independence and Self-Satisfaction; doesn't value Following Father's Occupation.

OVAL 11 = Values Intellectual Stimulation and Variety; doesn't value Success, Prestige, and Economic Returns.

[i]ED ASP = Educational Aspirations

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

OVAL 13 = Values Independence, Management, and Economic Returns; doesn't value Esthetics.

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 20a.

Stage I

REGRESSION ANALYSIS

JAPAN - 10 Year Olds			CRITERION: Grade Point Average		
Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)8	28.51	.001	.27	.07	.07
C(SC)5-V	11.48	.001	.32	.10	.03
C(SC)7-IV	5.19	.023	.34	.12	.01
-C(SAI)17	3.61	.058	.35	.12	.01
[s]OVAL 16-A	14.91	.001	.40	.16	.04
OVAL 14	9.17	.003	.43	.18	.02
-OVAL 15	5.22	.023	.44	.19	.01
[i]ED ASP	14.99	.001	.48	.23	.03
[i]RAVEN	27.91	.001	.53	.28	.06
[i]BRS	240.92	.001	.76	.58	.29

Additional Explanatory Variables:

	pr	p	r	p
C(SC)2-II			.12	.05
C(SC)6			.11	.05
C(SC)10			.12	.05
OVAL 11			.16	.05
OCC ASP	.11	.039		

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)8 = Positive Attitude toward Task Achievement

C(SC)5-V = Copes with Authority

C(SC)7-IV= Copes with Interpersonal Relations

- C(SAI)17*= Does not report defensive responding

[s]OVAL 16-A= Does not value Following Father's Occupation

OVAL 14 = Values Altruism; doesn't value Success, Prestige, and Economic Returns

- OVAL 15 = Values Esthetics; doesn't value Security

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

C(SC)2-II= Copes with Aggression

C(SC)6 = Copes effectively with Authority with Neutral, not Negative Affect

C(SC)10 = Positive Attitudes toward Authority and Interpersonal Relations with a lack of positive Affect toward Interpersonal Relations

OVAL 11 Values Self-Satisfaction, Intellectual Stimulation, and Variety; doesn't value Management and Economic Returns.

OCC ASP = Occupational Aspirations

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a.

Stage III

REGRESSION ANALYSIS

JAPAN - 10 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)17	8.01	.005	.20	.04	.04
C(SC)9	5.21	.02	.26	.07	.03
OVAL 11	9.43	.002	.33	.11	.04
[s]OVAL 15-A	4.47	.04	.36	.13	.02
[i]ED ASP	14.46	.001	.44	.19	.06
[i]RAVEN	22.99	.001	.53	.28	.09
[i]BRS	38.75	.001	.64	.41	.12

Additional Explanatory Variables:

	pr	p	r	p

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 10 Year Olds CRITERION: Grade Point Average

Predictor
Variables:

[n]C(SAI)17 = Copes effectively

C(SC)9 = Depressive Affect toward Interpersonal Relations and Authority

OVAL 11 = Values Intellectual Stimulation and Variety; doesn't value Success, Prestige, and Economic Returns.

[s]OVAL 15-A = Values Independence and Self-Satisfaction; doesn't value Following Father's Occupation.

[i]Ed ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

Table 22

PERCENT OF VARIANCE EXPLAINED

JAPAN - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	9.0%	9.6%	5.7%
Coping/Motivation (unique)	17.1%	10.5%	15.2%
Total	33.0%	29.0%	28.3%

JAPAN - 10 Year Olds - Stage III

Aptitude (unique)	9.8%	12.3%	8.9%
Coping/Motivation (unique)	14.1%	9.8%	10.9%
Total	32.9%	30.7%	28.3%

Table 23

CORRELATIONS AMONG THE CRITERIA

JAPAN - 10 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.60		.54
GPA	.58		

JAPAN - 10 Year Olds - Stage III

Reading			
Math	.63		.67
GPA	.61		

JAPAN - 14 YEAR OLDS -- RESULTS AND DISCUSSION

This section provides a detailed picture of the coping patterns associated with achievement in Japanese 14 year old students from the 1965 (Stage I) and 1968 (Stage III) samples. The first results presented are the factor analyses of the coping/motivational instruments: Sentence Completion, Occupational Values, Views of Life, and the Social Attitudes Inventory. The factor comparison findings are then presented, indicating the degree of correspondence between the two samples of Japanese students. Sex and socioeconomic status differences are described next. Finally, the findings from the regression analyses are presented, showing the specific factors that predict and explain achievement for these students.

FACTOR ANALYSIS

Sentence Completion

Factor analyses of the Sentence Completion variables for both Stages I and III resulted in ten factors which accounted for a substantial percentage of the respective variances. These variables grouped primarily according to behavior areas, e.g., aggression variables loading on one factor, authority variables on another. The Stage I analysis appears in Table 1. There were five general factors, corresponding to coping with aggression, authority, anxiety, interpersonal relations, and task achievement. All included neutral, not negative affect in responding to the problem. Unit weights were constructed using those variables having a factor loading $\leq .40$. For example, factor 1 consisted of all five variables dealing with coping with anxiety. Factors 6-10 also tended to have variable loadings grouped according to sub-aspects of the behavioral areas. The Stage III factor analysis (Table 2) yielded the same pattern, with five major factors corresponding to each of the respective behavioral areas.

As these factors appeared to be yielding similar results, a comparison of the first five factors was made (see Table 3). These factors are highly similar, with respective percentages of common variables across stages of 100%, 100%, 80%, 60%, and 80%. Some of the variables which did not load higher than .40 on both stages still showed similar direction. While the program RELATE could not be used, due to slightly different numbers of variables, in the two stages, these five factors are considered "identical," and indicate a stable Japanese construct system at age 14, that defines coping skills in each of the five areas, separately.

Occupational Values

Factor analyses of the Occupational Values variables yielded six factors in both Stages I and III. Once again, variables having a factor loading $\leq .40$ were used to construct a unit weighted score for each factor (see analyses in Tables 4 and 5).

A comparison of the Occupational Values factors, according to the RELATE factor comparison method, is represented in Table 6. It can be seen that four of the six factors are "similar," having a cosine of .8 or better (interpreted similar to a correlation coefficient). Table 7 depicts the item comparison of these four factors across the two stages. The results of this comparison indicate much similarity in constructs across time for Japanese 14 year old students.

Views of Life

The Views of Life instrument was used only in Stage III. The factor analysis of these variables yielded eight factors, depicted in Table 8.

Social Attitudes Inventory

The factor analysis of the Social Attitudes Inventory (SAI) for Stage I is illustrated in Table 9. This was a self-report measure of coping effectiveness. Two factors emerged: ineffective or defensive responding, and positive coping. Curiously, the variable of passive coping, though chiefly a positive measure, also correlated somewhat with the defensive variables, indicating that some of the students who reported ineffective or defensive responding also reported some effectiveness in coping passively -- a combination that did not occur in other countries.

In Stage III, the SAI was an entirely different questionnaire. The factor analysis is shown in Table 10. One factor emerged. This factor describes effective coping across all five behavioral areas.

SUMMARY OF FACTOR COMPARISONS ACROSS SAMPLES

The summary of the comparison of all factors from the first and second samples is presented in Table 11. The comparison was made for the Sentence Completion and Occupational Values instruments, which were administered to both samples. (The SAI was re-designed for the second sample.) Table 11 is designed to show the general comparability of the factor structures across the two samples. If a factor in one sample had no corresponding factor in the other sample, the factor retained its original designation. For example, the Sentence Completion factor C(SC)6 of Stage I had no comparable factor in the second stage. If, however, a factor did have a comparable factor in the other sample, it received a new designation.

The comparison of the Sentence Completion factors was made on the basis of their factor content, as described earlier. The first five factors were extremely similar and are referred to as "identical" factors. These factors received the Roman numeral designation indicated in Table 11.

The Occupational Values instruments were compared with the RELATE factor comparison method. Four of these factors were called "similar" (RELATE value of .80 to .90) and they received an alphabetic designation. For example, similar factor "A" consisted of original factors OVAL 11 in both samples.

The factors unique to either sample are listed after the "common" factors in Table 11.

In the Japanese 14 year old sample, the first five Sentence Completion factors were identical across stages. While there were no "identical" factors in the Occupational Values comparison, four of the six factors were similar ($\leq .80$). The similarity of the factor structures in the two samples indicated that the coping and motivation patterns represented by these factors remained stable across time in the Japanese 14 year old student population.

SEX DIFFERENCES

Stage I sex differences are listed in Table 12. Males tended to report themselves as coping more effectively with anxiety. Males also placed greater value on success, prestige, economic returns, creativity, variety, and following father's occupation. Females placed greater value on altruism, self-satisfaction, intellectual stimulation, security, and surroundings. Generally, males appeared to be more concerned with the rewards of work, while females placed greater value on intrinsic satisfaction and security.

In Stage III (Table 13), there were many sex differences. Females tended to report themselves as coping more effectively with anxiety. Males expressed more hostile, but not depressive affect toward interpersonal relations, without depressive affect toward anxiety. Females reported greater belief in self-control of environment and academics, but with less self-esteem. They tended to value work for its own sake, and independent action; and they preferred immediate action more than did males. Females also placed greater value on self-satisfaction, intellectual stimulation, surroundings, associates, and security. Males placed more value on management, success, prestige, economic returns, independence, and creativity. Again, males appeared to be more concerned with long-range returns, status, and independence.

There were two factors which showed sex differences across both stages. Identical factor C(SC)I, a Sentence Completion factor having to do with coping with anxiety, showed sex differences in both stages, but in opposite directions (not a stable Japanese sex difference, apparently). Similar factor OVAL A showed that, across both stages, females placed greater value on such things as self-satisfaction and intellectual stimulation, while males valued success, prestige, and economic returns. Again, this suggests that females are more concerned with intrinsic work satisfactions while males show greater concern with rewards of public status and material success.

SES DIFFERENCES

Stage I social class differences are listed in Table 14. As only three out of eighteen tests were significant, these could be due to chance. Middle-class students tended to report themselves as coping more effectively than lower-class students in the areas of aggression and interpersonal relations. The middle class also placed greater value on creativity and variety, while the lower class valued prestige and surroundings more highly.

In Stage III (Table 15), four of twenty-five factors showed social class differences. On the Views of Life instrument the lower class expressed greater preference for practical action, rather than reflective thought. In addition, the lower class expressed a greater preference for competition than did the middle class. Other SES differences indicated that the middle-class students placed more value on following father's occupation and valued creativity more highly. Lower-class students placed higher value on prestige, esthetics, and security than did the middle class.

There were no SES differences common to both stages, indicating no consistent pattern of social class difference that was stable across time in the two samples of 14 year old Japanese students.

SUMMARY OF GREGRESSION ANALYSES

Reading Achievement

Predictors of reading achievement for Stage I are listed in Tables 16a and 16b. Good readers tended to cope well with problems of task achievement and aggression. (The apparent contradiction between C(SC)5 and C(SC)9 was the result of net suppression.) To interpret these two factors, one must consider their effects on each other. The simple correlations indicated that both variables were positively related to reading achievement; however, the two variables also shared variance that was unrelated to reading achievement. Thus, C(SC)5 accounted for some non-achievement-related variance in C(SC)9 which was probably stance, and perhaps some other aspects of coping. By including C(SC)5 as a predictor, thereby subtracting their unrelated aspect, the correlation of C(SC)9 with the criterion was increased. The results indicated that positive attitudes, engagement, and effectiveness in coping with aggression, as well as with task achievement, were substantial predictors of reading achievement.

Good readers in Stage I also placed higher value on variety, independence, and managerial power, and less value on prestige and pleasant surroundings. A desire for creativity has opposite weights in OVAL 12 and OVAL 13, where it was combined with different sets of other values. Other predictors of reading achievement included educational aspiration level, occupational aspiration level, Raven aptitude measure, and the Behavior Rating Scale. In addition, good readers tended not to cope well with anxiety. They also placed greater value on altruism, self-satisfaction, intellectual stimulation, and variety, and less value on success, prestige, economic returns and following father's occupation.

In Stage III (Tables 17a and 17b), good readers reported more effective coping in all behavior areas. They placed higher value on creativity, self-satisfaction, intellectual stimulation, variety, independence, and less value on security, success, prestige, economic returns, and surroundings. Other predictors of reading achievement included educational aspiration, the Raven, and the Behavior Rating Scale. In addition, good readers tended to prefer self-initiation of action. Occupational aspiration level was also positively correlated with reading achievement.

Across the two stages, there were two common motivation factors predicting achievement in reading. Occupational Values Factor B indicated that a desire for independence and managerial power distinguished good readers. OVAL A indicated that good readers placed higher value on such things as self-satisfaction and intellectual stimulation, rather than success, prestige, and economic returns. It appears they were more interested in the intrinsic rewards of satisfying efforts and specifically, intellectual efforts. The measures of educational and occupational aspirations were positively predictive in both stages. The aptitude (RAVEN) and peer ratings (BRS) were also positively associated with reading achievement in Japanese 14 year old students, in both samples.

Math Achievement

Predictors of math achievement in Stage I are listed in Tables 18a and 18b. Those students who did well in math tended to cope better with task achievement issues. They also placed greater value on independence, management, success, prestige, and economic returns, and less value on esthetics, creativity, altruism, self-satisfaction, and variety. Valuing of intellectual stimulation had a mixed relationship to math achievement, depending on other values it was paired with in OVAL 15 and OVAL 11. Other predictors of math achievement included educational aspirations, occupational aspirations, the Raven, and the BRS.

Interestingly, many of the occupational values which negatively predicted success in reading achievement were positively associated with success in math, in Stage I. In particular, good readers placed less value on success, prestige, and economic returns, while these were positively associated with achievement in math. Students who excelled more in math seemed to be more practical and materialistic in their concerns.

In Stage III (Tables 19a and 19b), students who did well in math coped well with all behavior areas (SAI). They also tended to cope well with task achievement, without hostile affect, placed higher value on creativity and less value on security. In addition, educational and occupational aspirations, the Raven, and the BRS were all positively correlated with math achievement in Stage III.

A comparison of the two stages showed that coping effectively with task achievement was important for success in math. Aptitude (RAVEN), the peer ratings (BRS), and educational and occupational aspirations also were predictive in both stages.

Grade Point Average

Predictors of GPA for Stage I are listed in Tables 20a and 20b, and include coping effectiveness in the behavior areas of task achievement and aggression. Coping with anxiety was negatively associated with teacher grades. Students with high GPA also placed greater value on altruism, self-satisfaction, intellectual stimulation, variety, independence, and management, and less value on success, prestige, economic returns, creativity, and esthetics. In addition, occupational and educational aspirations, the Raven, and the BRS were positively associated with GPA.

In Stage III (Tables 21a and 12b), predictors of GPA included coping effecitvely with task achievement; depressive, not hostile affect toward interpersonal relations; and depressive affect toward anxiety-arousing situations. Students with high GPA tended to be intrinsically motivated and independent. They placed higher value on independence, self-satisfaction and intellectual stimulation, and less value on surroundings, success, prestige, and economic returns. Valuing of management appeared to change direction as a predictor in OVAL 11 and OVAL 13. In addition, occupational and educational aspirations, the Raven, and the BRS were predictive of GPA.

A comparison across stages indicated that similar factors OVAL A and OVAL B were predictive in both stages. Teachers gave good grades to students who valued self-satisfaction, intellectual stimulation, independence and management, and who disvalued such things as success, prestige, and economic returns. This pattern was similar to that of good readers, while achievement in math seemed to be related to different occupational values. Coping with task achievement won teacher approval in both stages. A further feature, uniquely Japanese, was that teachers rewarded students who turned frustration into depression rather than outward hostility, and who accepted anxious feelings rather helplessly instead of coping with the anxiety-producing situation.

Occupational and educational aspirations, aptitude (Raven), and the peer ratings (BRS) predicted GPA in both stages. These measures, indeed, predicted all criteria.

PERCENTAGE OF VARIANCE

In order to assess the practical usefulness of these measures, for possible educational use, it is important to consider the percent of variance accounted for by aptitude and coping/motivation variables, both uniquely and together, in accounting for success on the criterion measures. To assess the unique contribution of aptitude, this variable was entered into the regression equation following the coping/motivation variables. Alternatively, to assess the unique contribution of the coping/motivation variables, aptitude was entered followed by the coping/motivation variables. The unique variance of both aptitude and coping/motivation variables was that increment of variance obtained beyond that accounted for by other variables. The results of these analyses are listed in Table 22.

Aptitude was an important predictor across all stages and criteria, uniquely accounting for an average of 12% of the variance in reading, 17% in math, and 10% in GPA.

The coping/motivation factors were also important predictors. They uniquely accounted for an average of 19% of the variance in reading, more than the aptitude measure. In math, the coping/motivation factors uniquely accounted for an average of 13%. In GPA, the coping/motivation factors uniquely accounted for 7.5% of the variance in Stage I, and in Stage III they uniquely accounted for 21.6% of the variance.

What is more, some properties that reflected both aptitude and coping substantially increased the total variance explained (27%-43%) on all achievement criteria. This gave added weight to the explanatory power and the practical usefulness of the coping/motivation measures.

In sum, the coping/motivation factors were both significant and useful predictors across all criteria and stages, which indicated that success in school for Japanese 14 year old students was strongly contingent upon attitudinal qualities and coping skills that involve many aspects of life, particularly those that related to the kinds and level of future careers the students desire.

Table 1

STAGE I

SENTENCE COMPLETION

		Loadings									
JAPAN - 14 Year Olds		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item											
39	Attitude - Authority	.076	.075	.150	.052	.064	.096	.077	.734*	-.013	-.047
40	Att. - Interpersonal Relations	.075	.071	.032	.008	.037	-.029	-.019	.804*	.063	.058
41	Att. - Task Achievement	.128	-.001	.198	-.019	-.076	-.017	.266	.262	.408*	.075
43	Aggression - Stance	.066	.945*	.049	.059	.023	-.035	.039	.081	-.010	.019
44	Aggression - Engagement	.038	.754*	-.045	.057	-.047	-.113	.030	.139	-.011	.039
45	Aggression - Coping Eff.	.083	.972*	.043	.068	.029	-.004	.043	.043	-.019	-.012
46	Aggression - Neg. Affect	-.060	-.906*	-.096	-.073	-.044	-.068	-.009	.055	-.005	.055
47	Aggression - Pos. Affect	.060	.906*	.096	.073	.044	.068	.009	-.055	.005	-.055
48	Authority - Stance	.053	.115	.610*	.072	.054	.519*	.177	.069	.020	-.043
49	Authority - Engagement	.017	-.053	.210	-.069	.107	.612*	-.008	.091	-.091	-.133
50	Authority - Coping Eff.	.098	.099	.822*	.076	.091	.359	.049	.097	.100	.060
51	Authority - Neg. Affect	-.102	-.064	-.944*	-.103	-.086	-.008	.030	-.046	.016	-.027
52	Authority - Neutral Aff.	.085	.054	.933*	.099	.090	-.235	.011	.068	-.040	-.024
53	Authority - Pos. Affect	.048	.025	-.036	.007	-.018	.799*	-.135	-.074	.079	.167
54	Anxiety - Stance	.951*	.080	.057	-.008	.059	-.013	.049	.011	.004	.011
55	Anxiety - Engagement	.834*	.031	.065	.033	.080	-.048	.074	.066	.098	.029
56	Anxiety - Coping Eff.	.849*	.089	.013	.000	-.030	.083	.039	.086	.025	-.003
57	Anxiety - Neg. Affect	-.957*	-.052	-.068	.007	-.100	-.016	.015	-.002	.037	.013
58	Anxeity - Neutral Aff.	.957*	.052	.068	-.007	.100	.016	-.015	.002	-.037	-.013

STAGE I

SENTENCE COMPLETION

JAPAN - 14 Year Olds (continued)	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
59 Interpersonal Relations - Stance	.126	.137	-.027	.325	.094	.130	.674*	-.056	.001	.090
60 IPR - Engagement	.034	.031	.089	-.046	.040	-.127	.817*	.086	.005	-.051
61 IPR - Coping Eff.	.049	.148	.122	.842*	.081	.013	.358	.073	.034	.012
62 IPR - Negative Affect	.013	-.122	-.099	-.967*	-.081	.001	.044	-.004	.007	.022
63 IPR - Neutral Affect	-.013	.122	.099	.967*	.081	-.001	-.044	.004	-.007	-.022
64 IPR - Positive Affect	-.000	-.000	-.000	.000	-.000	.000	.000	.000	.000	-.000
65 Task Achievement - Stance	.046	.042	.023	.051	.577*	.050	.108	-.023	.737*	.022
66 Task Ach. - Engagement	-.022	-.052	-.067	-.006	.078	.033	-.123	-.007	.891*	-.049
67 Task Ach. - Coping Eff.	.088	.042	.098	.107	.743*	.055	.154	-.001	.417*	.284
68 Task Ach. - Neg. Affect	-.178	-.025	-.142	-.095	-.919*	-.031	-.004	-.081	-.000	-.072
69 Task Ach. - Neutral Aff.	.150	.053	.108	.101	.836*	.039	-.002	.056	-.003	-.441*
70 Task Ach. - Pos. Affect	.021	-.058	.040	-.028	-.003	-.021	.011	.032	.007	.967*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 2

STAGE III

SENTENCE COMPLETION

	Loadings									
JAPAN - 14 Year Olds	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item										
64 Task Achievement-Attitude	.072	.221	.140	-.015	.077	.005	.216	-.017	-.087	.489*
65 T.A. - Stance	.113	.876*	.116	.050	.122	.019	-.050	.123	-.183	.044
66 T.A. - Engagement	.060	.869*	.047	.053	.000	-.070	-.004	.044	.091	.032
67 T.A. - Aid/Advice	.124	.822*	.017	.067	.089	-.158	.011	-.019	.141	-.049
68 T.A. - Coping Effect	.107	.792*	.093	.058	.203	-.094	.011	-.050	-.321	.020
69 T.A. - Hostile Affect	-.002	-.242	-.100	-.061	.009	.004	-.027	.148	.823*	-.137
70 T.A. - Depressive Aff.	-.054	-.728*	-.103	-.011	-.111	-.222	-.054	-.041	-.201	.042
71 T.A. - Neutral Aff.	.074	.773*	.136	.068	.082	.159	.082	.121	-.363	-.001
72 T.A. - Positive Aff.	-.103	-.188	.022	-.070	-.010	.033	-.073	-.625*	-.032	.190
73 Interpersonal Relations Attitude	.077	-.055	.146	-.034	-.022	.076	.125	.018	.058	.453*
74 I.R. - Stance	.041	.085	.842*	.138	.098	.179	-.015	-.021	.098	.061
75 I.R. - Engagement	.147	.106	.900*	.101	.108	-.050	-.024	-.000	.067	.048
76 I.R. - Aid/Advice	.149	.105	.902*	.106	.108	-.056	-.023	.008	.056	.040
77 I.R. - Coping Effect	.177	.134	.915*	.142	.139	-.076	.011	.026	-.089	.083
78 I.R. - Hostile Affect	-.172	-.037	-.504*	-.104	-.065	.537*	.015	.015	.285	-.015
79 I.R. - Depressive Aff.	.061	-.013	-.357	-.065	-.023	-.788*	-.073	-.058	-.018	-.061
80 I.R. - Neutral Aff.	.087	.047	.734*	.153	.082	.234	.124	.020	-.228	.076
81 I.R. - Positive Aff.	.020	-.051	.017	-.073	-.064	.159	-.629*	.162	.059	-.087

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

JAPAN - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
82 Authority - Attitude	.117	.198	.103	.115	.121	-.235	.265	-.125	.391	.418*
83 Auth. - Stance	.092	.155	.167	.043	.721*	-.109	.217	.060	.151	-.004
84 Auth. - Engagement	.121	.096	.055	-.031	.673*	.089	.334	.224	-.142	-.247
85 Auth. - Aid/Advice	.163	.102	.087	-.052	.715*	.004	.350	.184	-.078	-.144
86 Auth. - Coping Eff.	.122	.147	.157	.078	.904*	-.009	.034	.031	.008	.012
87 Auth. - Hostile Aff.	-.101	-.093	-.082	-.110	-.747*	-.007	.477*	.176	.015	-.161
88 Auth. - Depress. Aff.	.027	-.011	-.049	.016	-.162	-.170	-.644*	-.051	-.082	-.138
89 Auth. - Neutral Aff.	.085	.095	.103	.099	.800*	.089	-.151	-.145	.025	.222
90 Auth. - Positive Aff.	-.000	.000	.000	-.000	.000	-.000	.000	.000	.000	-.000
91 Anxiety - Attitude	.061	-.141	-.041	.149	-.015	.127	-.161	.103	-.205	.566*
92 Anx. - Stance	.801*	.186	.086	.044	.161	.180	-.053	-.009	-.018	-.007
93 Anx. - Engagement	.875*	.003	.079	.013	.042	-.069	.026	.071	.109	.179
94 Anx. - Aid/Advice	.892*	-.036	.073	.025	.026	-.049	.024	.101	.095	.152
95 Anx. - Coping Eff.	.902*	.135	.152	.057	.141	-.016	-.048	.034	-.061	-.021
96 Anx. - Hostile Aff.	-.534*	.046	-.167	-.054	.022	.398	-.096	-.223	.036	-.168
97 Anx. - Depressive Aff.	-.544*	-.282	-.034	.022	-.163	-.463*	.049	.262	.110	.195
98 Anx. - Neutral Aff.	.837*	.214	.140	.017	.126	.064	-.010	-.089	-.092	-.080
99 Anx. - Positive Aff.	.098	.010	.041	.008	.007	.275	.159	.077	-.134	.118

STAGE III

SENTENCE COMPLETION

Table 2 (continued)

JAPAN - 14 Year Olds

Item	Loadings Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
100 Aggression - Stance	.033	.145	.114	.494*	.037	.208	-.200	.449*	-.020	.204
101 Agg. - Engagement	-.021	.055	.152	.838*	.048	.041	-.007	.263	-.057	.019
102 Agg. - Aid/Advice	-.010	.041	.157	.835*	.088	.001	-.011	.269	-.046	.005
103 Agg. - Coping Effect	.064	.080	.143	.945*	.072	-.020	.005	-.045	.005	.019
104 Agg. - Hostile Aff.	-.061	-.035	-.079	-.887*	.011	.014	-.071	.299	-.016	.030
105 Agg. - Depressive Aff.	-.028	-.001	-.015	.063	-.075	.114	.101	-.562*	-.062	-.218
106 Agg. - Neutral Aff.	.068	.036	.083	.892*	.003	-.037	.052	-.193	.029	.013
107 Agg. - Positive Aff.	0	0	0	0	0	0	0	0	0	0

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 3

ITEM COMPARISON FOR JAPAN 14 YEAR OLDS - STAGES I AND III - SENTENCE COMPLETION

(Factor Loadings)

JAPAN	I		II		III		IV		V		VI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	4	3	5	4	3	5	2		
64 Task Achievement - Attitude												
65 TA - Stance									.58	.88		
66 TA - Engagement									(.08)	.87		
*67 TA - Aid/Advice										.82		
68 TA - Coping									.74	.79		
**69 TA - Hostile									-.92	(-.24)		
**70 TA - Depressive										-.73		
71 TA - Neutral									.84	.77		
72 TA - Positive												
73 Interpersonal Relations - Att.												
74 IPR - Stance							(.33)	.84				
75 IPR - Engagement							(-.05)	.90				
*76 IPR - Aid/Advice								.90				
77 IPR - Coping							.84	.92				
**78 IPR - Hostile							-.97	-.50				
**79 IPR - Depressive								(-.36)				
80 IPR - Neutral							.97	.73				
81 IPR - Positive												

Table 3 (continued)

JAPAN	I		II		III		IV		V		VI	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	4	3	5	4	3	5	2		
82 Authority - Att.												
83 Auth. - Stance					.61	.72						
84 Auth. - Engagement					(.21)	.67						
85 Auth. - Aid/Advice						.72						
86 Auth. - Coping					.82	.90						
87 Auth. - Hostile					-.94	-.75						
88 Auth. - Depressive						(-.16)						
89 Auth. - Neutral					.93	.80						
90 Auth. - Positive												
91 Anxiety - Att.												
92 Anx. - Stance	.95	.80										
93 Anx. - Engage.	.83	.88										
*94 Anx. - Aid/Advice		.89										
95 Anx. - Coping	.85	.90										
*96 Anx. - Hostile	-.96	-.53										
*97 Anx. - Depressive		-.54										
98 Anx. - Neutral	.96	.84										
*99 Anx. - Positive												

Table 3 (continued)

JAPAN	I		II		III		IV		V	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	1	1	2	4	3	5				
100 Aggression - Stance			.95	.49						
101 Aggression - Engagement			.75	.84						
*102 Aggression - Aid/Advice				.84						
103 Aggression - Coping			.97	.95						
*104 Aggression - Hostile			-.91	-.89						
*105 Aggression - Depress.				(.06)						
*106 Aggression - Neutral			.90	.89						
107 Aggression - Positive										

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* This variable was only present in the Stage III instrument

** In the Stage I instrument, both Hostile and Depressive Affect were scored as one variable "Negative Affect"

Table 4

STAGE I

OCCUPATIONAL VALUES

JAPAN - 14 YEAR OLDS		Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor 16 Loading
Item							
14	Altruism	.470*	-.334	-.102	.495*	-.000	-.136
15	Esthetics	.128	.156	-.005	-.116	-.801*	.196
16	Independence	.085	.353	.739*	-.039	-.138	.004
17	Management	-.332	.128	.504*	.333	.262	-.141
18	Success	-.795*	-.016	.075	.248	.119	.023
19	Self-Satisfaction	.542*	-.101	.127	.181	-.002	.114
20	Intellectual Stimulation	.408*	.301	-.157	-.211	.407*	.489*
21	Creativity	.129	.477*	-.584*	.088	-.052	-.136
22	Security	.084	-.740*	-.054	-.019	.009	-.045
23	Prestige	-.639*	.213	-.144	.220	-.281	.198
24	Economic Returns	-.748*	-.012	.167	-.129	.238	.122
25	Surroundings	.179	-.712*	-.153	-.133	.146	.117
26	Associates	.073	-.226	-.020	-.819*	.066	-.056
27	Variety	.499*	.460*	-.097	-.003	.299	.231
28	Follow Father	.111	.073	-.059	-.048	.229	-.854*

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 5

STAGE III

OCCUPATIONAL VALUES

JAPAN - 14 Year Olds	Factor 11 Loading	Factor 12 Loading	Factor 13 Loading	Factor 14 Loading	Factor 15 Loading	Factor Loading
Item						
14 Altruism	.054	.014	-.076	.018	-.842*	-.072
15 Esthetics	.107	-.733*	-.185	-.147	.043	-.237
16 Independence	.108	-.013	.681*	.056	.105	-.068
17 Management	-.516*	.300	.434*	-.002	-.301	.201
18 Success	-.757*	-.014	.034	-.134	.338	.114
19 Self-Satisfaction	.571*	-.303	.129	-.177	-.188	.394
20 Intellectual Stimulation	.664*	.054	.135	.114	.238	.137
21 Creativity	.131	.061	-.005	-.429*	-.297	-.458*
22 Security	-.033	.149	-.300	-.075	.066	.744*
23 Prestige	-.481*	-.432*	.098	-.263	.276	-.312
24 Economic Returns	-.607*	.115	.263	.197	.396	.030
25 Surroundings	.049	.071	-.674*	.356	-.028	.293
26 Associates	.058	.001	-.087	.903*	-.046	-.064
27 Variety	.663*	.160	.170	-.092	.181	-.259
28 Follow Father	.115	.765*	-.245	.248	.072	-.187

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* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 6

FACTOR COMPARISON FOR JAPAN 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

STAGE I	STAGE III					
Factors	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16
11	.878*	-.023	-.012	.059	-.462	.102
12	.218	.058	.564	-.267	.203	-.720
13	-.155	-.115	.799*	.398	-.176	.376
14	-.203	.071	.157	-.814*	-.438	.243
15	.181	.846*	.105	-.049	.365	.325
16	.288	-.518	.091	-.312	.618	.412

---

* Similar factors
** Identical factors

Table 7

ITEM COMPARISON FOR JAPAN 14 YEAR OLDS - STAGES I AND III - OCCUPATIONAL VALUES

(Factor Loadings)

JAPAN	A		B		C		D	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Factor No.	11	11	13	13	14	14[a]	15	12
14 Altruism	.47	(.05)*			.50	(-.02)		
15 Esthetics							-.80	-.73
16 Independence			.74	.68				
17 Management	(-.33)	-.52	.50	.43				
18 Success	-.80	-.76						
19 Self-Satis.	.54	.57						
20 Intell. Stim.	.41	.66					.41	(.05)
21 Creativity			-.58	(-.01)	(.09)	.43		
22 Security								
23 Prestige	-.64	-.48					(-.28)	-.43
24 Economic Ret.	-.75	-.61						
25 Surroundings			(-.15)	-.67				
26 Associates					-.82	-.90		
27 Variety	.50	.66						
28 Follow Father							(.23)	.77

---

* These numbers in parentheses are the corresponding loading for each country on those variables tha were used in the unit weighted scores, but load significantly in one country.

[a] The signs in this factor have been reversed as the factors are mirror images. See text for furth details.

Table 8

STAGE III

VIEWS OF LIFE

JAPAN - 14 Year Olds	Loadings Factor 17	Factor 18	Factor 19	Factor 20	Factor 21	Factor 22	Factor 23	Factor 24
Item								
43 Locus of Control(Internal/external)	.474*	.035	-.043	-.171	.065	-.060	.053	.232
44 Academic Locus of Control	.470*	.076	.052	-.005	-.127	.063	-.015	.050
45 Action-Inaction	.128	.446*	.175	-.016	-.341	.149	.052	-.073
46 Immediate - Delayed Action	.082	.051	.026	-.002	-.093	.006	-.010	.518*
47 Rate of Action	.038	.036	.015	.050	-.236	.050	.382	.060
48 Intrinsic-Extrinsic Work Motivation	-.023	.069	.506*	.033	.030	-.393	-.016	-.085
49 Task Achievement-Interpersonal Relations	.151	.069	.144	.239	.032	.049	-.100	.091
50 Competition-Cooperation	-.176	-.140	-.116	.560*	.183	-.025	-.073	-.046
51 Independent-Interdependent	.104	.062	.403*	-.074	.085	.092	.102	.024
52 Earned - Bestowed Status	.195	.077	.303	-.355	.006	-.158	.270	.163
53 Confront - Avoid	.159	.145	-.278	-.039	.063	-.092	.170	-.049
54 Self-Other Initiation	-.003	.066	-.001	-.164	.046	.057	.395*	-.066
55 Self-Other Solver	.054	-.044	.038	.042	.012	.523*	-.003	-.012
56 Self - Joint Implementation	.019	-.025	.099	.090	.487*	.012	-.038	-.079
58 Instrument - Fantasy	-.137	.620*	-.037	-.194	.086	-.042	.082	-.056
59 Emotional Control/Expressivity	.215	.210	-.027	.167	.275	.174	-.051	-.050
60 Activity/Passivity under Stress	.028	.366	.020	.049	-.018	-.074	.010	.116
61 Positive/Negative Self-Esteem	-.476*	.193	.038	-.077	-.159	.026	.110	.190
62 View of Life (Complex/Simple)	.337	-.076	.125	-.059	-.000	.159	.281	.043

Table 9

STAGE I

SOCIAL ATTITUDES INVENTORY

JAPAN - 14 Year Olds	Loadings Factor 17	 Factor 18
Sub-Scores		
1 Active Coping	-.343	.811*
2 Passive Coping	.494*	.693*
3 Active Defensive	.589*	-.028
4 Passive Defensive	.840*	-.039

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 10

STAGE III

SOCIAL ATTITUDES INVENTORY

JAPAN - 14 Year Olds Sub-Scores	Factor Loading Factor 25
37 Task Achievement	.398*
38 Authority	.535*
39 Aggression	.645*
40 Interpersonal Relations	.574*
41 Anxiety	.439*

---

* These variables had a factor loading of .40 or better and were used to construct a unit weighted score for each factor. See text for further explanation.

Table 11

COMPARISON OF FACTORS ACROSS SAMPLES

JAPAN - 14 Year Olds

	COMMON FACTORS			
New Factor Designation	Factor Abbreviation	Stage I Designation	Stage III Designation	NAME
I	C(SC)	1	1	Copes with Anxiety
II	C(SC)	2	4	Copes with Aggression
III	C(SC)	3	5	Copes with Authority
IV	C(SC)	4	3	Copes with Interpersonal Relations
V	C(SC)	5	2	Copes with Task Achievement
A	OVAL	11	11	Values Self-Satisfaction, Intellectual Stimulation, and Variety; doesn't value Success, Prestige and Economic Returns. (Values Altruism; doesn't value Management)*
B	OVAL	13	13	Values Independence and Management (Doesn't value Creativity and Surroundings)
C	OVAL	14	14	Doesn't value Associates (Values Altruism and Creativity)
D	OVAL	15	12	Doesn't value Esthetics (Values Intellectual Stimulation and Following Father; doesn't value Prestige)
	UNIQUE FACTORS			
	C(SC)	6	-	Copes with Authority via Stance and Engagement with Positive Affect
	C(SC)	7	-	Copes with Interpersonal Relations via Stance and Engagement
	C(SC)	8	-	Positive Attitude toward Authority and Interpersonal Relations
	C(SC)	9	-	Copes effectively with Task Achievement via Stance and Engagement with a Positive Attitude
	C(SC)	10	-	Positive, not Neutral Affect toward Task Achievement
	C(SC)	-	6	Hostile, not Depressive Affect toward Interpersonal Relations without Depressive Affect toward Anxiety
	C(SC)	-	7	Hostile, not Depressive Affect toward Authority; lack of Positive Affect toward Interpersonal Relations.
	C(SC)	-	8	Lack of Positive Affect toward Task Achievement; Confronts Aggression without Depressive Affect.
	C(SC)	-	9	Hostile Affect toward Task Achievement
	C(SC)	-	10	Positive Attitude toward Task Achievement, Interpersonal Relation, Authority and Anxiety.
	OVAL	12	-	Values Creativity and Variety; doesn't value Security and Surroundings
	OVAL	16	-	Values Intellectual Stimulation; doesn't value Following Father's Occupation
	OVAL	-	15	Doesn't value Altruism
	OVAL	-	16	Values Security; doesn't value Creativity
	C(VOL)	-	17	Internal Locus of Control, Internal Academic Locus of Control, Negative Self-Esteem.
	C(VOL)	-	18	Prefers Action, Gains satisfaction from actual accomplishments
	C(VOL)	-	19	Intrinsically Motivated, Independent
	C(VOL)	-	20	Competitive
	C(VOL)	-	21	Self-Implementor
	C(VOL)	-	22	Self-Solver
	C(VOL)	-	23	Self-Initiator
	C(VOL)	-	24	Prefers Immediate Action
	C(SAI)	17	-	Shows defensive behavior
	C(SAI)	18	-	Copes effectively
	C(SAI)	-	25	Copes effectively

---

* The variables in parentheses only appear in one of the factors.

Table 12

SIGNIFICANT SEX DIFFERENCES*

JAPAN - 14 Year Olds - STAGE I

			Probability Level
C(SC)1-I	F < M**	Copes effectively with Anxiety via Stance and Engagement with Neutral, not Negative Affect	$p < .048$
[i]OVAL 11-A	F > M	Values Altruism, Self-Satisfaction, Intellectual Stimulation, and Variety; doesn't value Success, Prestige, and Economic Returns	$p < .001$
OVAL 12	F < M	Values Creativity and Variety; doesn't value Security and Surroundings	$p < .001$
OVAl 16	F > M	Values Intellectual Stimulation; doesn't Follow Father	$p < .001$

---

* 4/18 (22%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

Table 13

SIGNIFICANT SEX DIFFERENCES*

JAPAN - 14 Year Olds - Stage III

			Probability Level
C(SC)1-I	F > M**	Copes effectively with Anxiety with Neutral, not Hostile or Depressive Affect.	$p < .049$
C(SC)6	F < M	Hostile, not Depressive Affect toward Interpersonal Relations without Depressive Affect toward Anxiety.	$p < .001$
[n]VOL 17	F > M	Belief in Self-Control of Environment and Academics but with Negative Self-Esteem	$p < .018$
[n]VOL 19	F > M	Values work for its own sake with independent action	$p < .008$
[n]VOL 24	F > M	Prefers immediate action	$p < .035$
[i]OVAL 11-A	F > M	Values Self-Satisfaction, Variety, and Intellectual Stimulation; doesn't value Management, Success, Prestige, and Economic Returns.	$p < .007$
OVAL 13-B	F < M	Values Independence, and Management; doesn't value Surroundings	$p < .001$
OVAL 14-C	F > M	Values Associates; doesn;t value Creativity	$p < .001$
OVAL 16	F > M	Values Security; doesn't value Creativity	$p < .023$

---

* 9/25 (36%) of the significance tests were significant above chance. This indicates these results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** F = Female M = Male

[i] = An identical sex difference in both samples (Stages I and III)

[n] = No comparable instrument in the other sample

Table 14

SIGNIFICANT SES DIFFERENCES*

JAPAN - 14 Year Olds - STAGE I

			Probability Level
C(SC)2-II	L< M**	Copes effectively with Aggression via Stance and Engagement with Positive, not Negative Affect	$p < .021$
C(SC)4-IV	L< M	Copes effectively with Interpersonal Relations with Neutral, not Negative Affect	$p < .017$
OVAL 12	L< M	Values Creativity and Variety; doesn't value Prestige and Surroundings	$p < .001$

---

* 3/18 (17%) of the significance tests were significant above chance. This indicates these results may have been spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

Table 15

SIGNIFICANT SES DIFFERENCES*

JAPAN - 14 Year Olds - STAGE III

			Probability Level
nVOL 18	L > M**	Prefers action; gains satisfaction from accomplishments	p < .031
nVOL 20	L < M	Prefers competition	p < .03
OVAL 12-D	L < M	Follows Father; doesn't value Prestige and Esthetics	p < .027
OVAL 16	L > M	Values Security; doesn't value Creativity	p < .004

---

* 4/25 (16%) of the sifnificance tests were significant above chance. This indicates the results were not spurious (cf. Godbout, Marston, Borich, Vaughan, 1977).

** L = Lower Class M = Middle Class

n = No comparable instrument in the other sample.

Table 16a

STAGE I

REGRESSION ANALYSIS

JAPAN - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9	11.72	.001	.19	.04	.04
C(SC)2-II	9.20	.003	.25	.06	.03
-C(SC)5-III	6.94	.009	.29	.08	.02
OVAL 12-	6.82	.009	.32	.10	.02
[s]OVAL 13-B	6.17	.014	.35	.12	.02
[i]ED ASP	80.41	.001	.55	.30	.18
[i]OCC ASP	4.75	.030	.56	.31	.01
[i]RAVEN	66.92	.001	.66	.43	.12
[i]BRS	58.85	.001	.72	.52	.09

Additional Explanatory Variables:

	pr	p	r	p
[s]OVAL 11-A			.12	.05
-C(SC)1-I	-.12	.030		
OVAL 16	.11	.052		

---

[i] = An identical predictor or explanatory factor across samples.

[s] = A similar predictor across samples

Table 16b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 14 Year Olds CRITERION: Reading Achievement

Predictor
Variables:

C(SC)9 = Copes effectively with Task Achievement with positive attitude

C(SC)2-II= Copes effectively with Aggression

*-C(SC)5-III= Does not cope effectively with Task Achievement via Stance, Neutral not Negative Affect.

OVAL 12- = Values Creativity and Variety, does not value Security and Surroundings

[s]OVAL 13-B = Values Independence and Management; doesn't value Creativity

[i]ED ASP = Educational Aspiration

[i]OCC ASP = Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[s]OVAL 11-A = Values Altruism, Self-Satisfaction, Intellectual Stimulation and Variety; does not value Success, Prestige or Economic Returns

- C(SC)1-I = Does not cope effectively with Anxiety

OVAL 16 = Values Intellectual Stimulation; does not value Following Father

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which negatively predict are described in accordance with a negative sign. (They may appear elsewhere as positive predictors, in other analyses. There, they are described in opposite terms for clarity of interpretation.)

Table 17a

STAGE III

REGRESSION ANALYSIS

JAPAN - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI) 25	5.95	.02	.18	.03	.03
-OVAL 16	4.93	.03	.24	.06	.03
[s]OVAL 11-A	2.59	.11	.27	.07	.01
[s]OVAL 13-B	3.76	.05	.30	.09	.02
[i]ED ASP	35.04	.001	.49	.24	.15
[i]RAVEN	34.09	.001	.60	.36	.12
[i]BRS	22.83	.001	.66	.44	.07

Additional Explanatory Variables:

	pr	p	r	p
C(VOL) 23			.15	.05
[i]OCC ASP			.31	.05

---

[n] = No comparable instrument in the other sample.

[i] = An identical predictor or explanatory factor across samples.

[s] = A similar predictor across samples

Table 17b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 14 Year Olds CRITERION: Reading Achievement

Predictor Variables:

[n]C(SAI)25 = Reports coping effectively

*-OVAL 16 = Doesn't value Security; values Creativity

[s]OVAL 11-A = Values Self-Satisfaction, Intellectual Stimulation and Variety; doesn't value Management, Success, Prestige, and Economic Returns.

[s]OVAL 13-B = Values Independence and Management; doesn't value Surroundings

[i]ED ASP = Educational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior RAting Scale

Additional Explanatory Variables:

C(VOL)23 = Prefers Self-Initiation in problem solving

[i]OCC ASP = Occupational Aspirations

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which negatively predict are described in accordance with a negative sign. (They may appear elsewhere as positive predictors, in other analyses. There, they are described in opposite terms for clarity of interpretation.)

Table 18a

STAGE I

REGRESSION ANALYSIS

JAPAN - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9	9.39	.002	.17	.03	.03
OVAL 15-D	7.65	.006	.23	.05	.02
OVAL 13-B	5.74	.017	.26	.07	.02
-OVAL 11-A	6.58	.011	.30	.09	.02
[i]ED ASP	46.15	.001	.45	.20	.12
-[i]OCC ASP	5.39	.021	.47	.22	.01
[i]RAVEN	70.11	.001	.60	.36	.14
[i]BRS	150.26	.001	.75	.57	.21

Additional Explanatory Variables:

	pr	p	r	p
[i]C(SC)5-V			.13	.05

---

[i] = An identical predictor or explanatory factor across samples.

Table 18b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:

C(SC)9 = Copes effectively with Task Achievement with Positive Attitude

OVAL 15-D= Values Intellectual Stimulation; doesn't value Esthetics

OVAL 13-B= Values Independence and Management; doesn't value Creativity

-OVAL 11-A*= Values Success, Prestige, and Economic Returns; doesn't value Altruism, Self-Satisfaction, Intellectual Stimulation, and Variety.

[i]ED ASP = Educational Aspirations

[i]-OCC ASP= Lack of Occupational Aspiration

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]C(SC)5-V = Copes effectively with Task Achievement with neutral not negative Affect.

---

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it [illegible]s a positive predictive value.

Table 19a

STAGE III

REGRESSION ANALYSIS

JAPAN - 14 Year Olds CRITERION: Math Achievement

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
[n]C(SAI)25	6.30	.01	.18	.03	.03
-C(SC)9	3.74	.055	.23	.05	.02
-OVAL 16	3.93	.05	.27	.07	.02
[i]ED ASP	35.63	.001	.48	.23	.15
[i]RAVEN	62.55	.001	.66	.43	.20
[i]BRS	23.36	.001	.70	.50	.07

Additional Explanatory Variables:

	pr	p	r	p
[i]C(SC)2-V			.17	.05
[i]OCC ASP			.32	.05

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

Table 19b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 14 Year Olds CRITERION: Math Achievement

Predictor
Variables:

[n]C(SAI)25 = Reports coping effectively

-C(SC)9 * = Doesn't have hostile Affect toward Task Achievement

-OVAL 16 = Does not value Security, values Creativity

[i]ED ASP = Educational Aspirations

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]C(SC)2- V= Copes with Task Achievement

[i]OCC ASP = Occupational Aspirations

---

[n] = No comparable instrument in the other sample

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 20a

STAGE I

REGRESSION ANALYSIS

JAPAN - 14 Year Olds — CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)9	5.54	.019	.13	.02	.02
-C(SC)1-I	6.18	.013	.19	.04	.02
C(SC)2-II	3.71	.055	.22	.05	.01
[s]OVAL 11-A	7.86	.005	.26	.07	.02
[s]OVAL 13-B	5.63	.018	.29	.09	.02
[i]OCC ASP	19.79	.001	.37	.14	.05
[i]ED ASP	7.03	.008	.40	.16	.02
[i]RAVEN	47.56	.001	.52	.27	.11
[i]BRS	227.38	.001	.76	.58	.31

Additional Explanatory Variables:

	pr	p	r	p
OVAL 15-D	.11	.051		

---

[i] = An identical predictor or explanatory factor across samples.

[s] = A similar predictor across samples

Table 20b.

Stage I

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 14 Year Olds CRITERION: Grade Point Average

Predictor
Variables:

C(SC)9 = Copes effectively with Task Achievement with positive Attitude

-C(SC)1-I* = Does not cope effectively with Anxiety

C(SC)2-II = Copes effectively with Aggression

[s]OVAL 11-A = Values Altruism, Self-Satisfaction, Intellectual Stimulation, and Variety; doesn't value Success, Prestige, and Economic Returns.

[s]OVAL 13-B = Values Independence and Management; doesn't value Creativity.

[i]OCC ASP = Occupational Aspirations

[i]ED ASP = Educational Aspirations

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scales

Additional Explanatory Variables:

OVAL 15-D = Values Intellectual Stimulation; doesn't value Esthetics.

---

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

* = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 21a

STAGE III

REGRESSION ANALYSIS

JAPAN - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:	F	p	Multiple R	R^2	R^2 Change
C(SC)2-V	11.09	.001	.24	.06	.06
-C(SC)6	5.82	.02	.30	.09	.03
[n]C(VOL)19	4.25	.04	.33	.11	.02
[s]OVAL 13-B	5.36	.02	.37	.13	.03
[s]OVAL 11-A	9.68	.002	.42	.18	.04
[i]ED ASP	37.35	.001	.57	.32	.14
[i]RAVEN	25.22	.001	.64	.41	.09
[i]BRS	39.13	.001	.72	.52	.11

Additional Explanatory Variables:

	pr	p	r	p
[i]OCC ASP			.26	.05

---

[n] = No comparable instrument in the other sample.

[i] = An identical predictor or explanatory factor across samples.

[s] = A similar predictor across samples

Table 21b.

Stage III

DESCRIPTION OF REGRESSION FACTORS

JAPAN - 14 Year Olds CRITERION: Grade Point Average

Predictor Variables:

C(SC)2-V = Copes effectively with Task Achievement

-C(SC)6* = Depressive not hostile Affect toward Interpersonal Relations and Depressive Affect toward Anxiety

[n]C(VOL)19 = Intrinsically motivated and Independent

[s]OVAL 13-B = Values Independence and Management; doesn't value Surroundings

[s]OVAL 11-A = Values Self-Satisfaction, Intellectual Stimulation and Variety; doesn't value Management, Success, Prestige, and Economic Returns.

[i]ED ASP = Educational Aspirations

[i]RAVEN = Raven Progressive Matrices

[i]BRS = Behavior Rating Scale

Additional Explanatory Variables:

[i]OCC ASP = Occupational Aspirations

---

[n] = No comparable instrument in the other sample

[s] = A similar predictor across samples

[i] = An identical predictor or explanatory factor across samples

[*] = Factors which predict negatively are described in terms of the behavior this indicates. The same factor may be described in opposite terms when, in some other analysis, it has a positive predictive value.

Table 22

PERCENT OF VARIANCE EXPLAINED

JAPAN - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Aptitude (unique)	12%	14%	11%
Coping/Motivation(unique)	22%	11%	7.5%
Total	43%	36%	27%

JAPAN - 14 Year Olds - Stage III

Aptitude (unique)	12%	20%	8.5%
Coping/Motivation(unique)	16.3%	14.6%	21.6%
Total	36%	43%	40.8%

Table 23

CORRELATIONS AMONG THE CRITERIA

JAPAN - 14 Year Olds - Stage I

	Reading Achievement	Math Achievement	GPA
Reading			
Math	.66		.74
GPA	.60		

JAPAN - 14 Year Olds - Stage III

Reading			
Math	.73		.81
GPA	.77		

A CROSS-NATIONAL COMPARISON OF COPING EFFECTIVENESS SCORES

Since the Sentence Completion factor scores proved to be substantially the same, from country to country, and since a number of these proved to be valid predictors of achievement in every country, it is meaningful to look at the scores comparatively, across countries. The Social Attitudes Inventory likewise was a "universal" measure, in each of its forms. In the Stage I sample, the Defensive score predicted achievement (negatively) in numerous sites so it, too, permits a meaningful comparison.

Several caveats must be emphasized, however. First, these are self-descriptive instruments, not objective measures of actual coping behavior. Consequently, even where they are valid, in the sense of predicting academic performance, they still are best thought of as self-descriptions. Second, with large samples, a relatively small difference can show statistical significance. Therefore, it is important to note the absolute size of any difference before deciding whether it is big enough to have appreciable practical or theoretical meaning. For these and other reasons it seems most useful to use this information chiefly to construct a profile for each country, showing in which coping skills its children reported themselves relatively strongest and weakest. This approach uses the total international sample as a source of reference, but does not concentrate on national comparisons in ways which could be invidious, and which almost certainly would increase the risk of overinterpretation and misinterpretation.

Method of Analysis

It was also of interest to compare the relative status of all the countries on various of the coping measures and to examine overall social class and sex differences across countries. Certain factors on the Sentence Completion and Social Attitudes Inventory instruments were virtually universal in all the countries. In the Sentence Completion, these factors consisted of Stance, Engagement, and Neutral, not Negative Affect in each of the five behavior areas. For the Social Attitudes Inventory, this analysis was done only for the 1965, Stage I sample. There were two universal factors; Active Coping and Defensive Behavior.

Three way, Country by Sex by Social Class, Analyses of Variance were done for each of the five Sentence Completion factors in both Stages I and III, and for the Social Attitudes Inventory factors relevant to Stage I. Main effects of country were significant in all analyses, therefore, post hoc tests of mean differences between individual countries were done, using Tukey's HSD method of honestly significant differences.

Findings

Table 1, National Profiles of Self-Portrayed Coping Skills, summarizes the particular coping skills on which each country's children stood relatively high or low, compared with the total set of national samples. This table forms the basis for the following description of each national sample:

Brazil. In the Stage I sample, both age groups exhibited effective action and attitudes in coping with achievement tasks. The 10 year olds were average in all other respects. The 14 year olds, however, additionally displayed good coping skills and attitudes in dealing with aggression and authority; but below-average skill in interpersonal relations.

In considerable contrast, the Stage III Brazilian children scored below the international mean in four of the five behavior areas: achievement, authority, and interpersonal relations, at both ages. The 10 year olds were also low in coping with anxiety. The 10 year olds were high in coping with anxiety, but low in coping with aggression.

Clearly, no simple generalizations can be stated about a "Brazilian coping style." It differed greatly between the two cohorts. The Stage I 14 year olds, in particular, displayed confident competence in several areas. The Stage III sample portrayed much less adequate coping skills and attitudes than the earlier sample. There was no major change in social or econoomic circumstances in Sao Paulo over this three-year period. The differences, like so many other cohort differences in this and other studies, remain unexplained. What can be said is that the Brazilian students displayed greater variation over time, as a group, than the other national samples. This "volatility" might itself prove to be a meaningful characteristic, if studies like this could be further replicated over later time samples.

England. The London children were distinguished by being middle-of-the-road on all coping measures in Stage I, except for the 10 year olds' high standing on achievement and interpersonal relations, and the 14 year olds' above-average defensive scores on the SAI (which correlated negatively with math achievement, there). The sample taken three years later, on the other hand, were not high in any coping skills but were low, in both age groups, in their self-demonstrated ability to cope with aggression, with anxiety, or with interpersonal relations. Looking at both samples together, the 10 year old children of London swung from high coping status in two areas to low coping skill in three areas. The 14 year olds dropped from medium-range coping, to below-average coping in three areas. Averaging these, so to speak, these children displayed relatively limited coping skills, especially in dealing with anxiety and with interpersonal relations. In these two areas, in particular, London children seem to be medium-well at best; not very well nor confidently, at worst.

West Germany. The fact that data were not collected for a Stage I sample makes it easier to describe the German pattern, though with less certainty about its possible stability over time. The 10 year olds in Stage III showed the least effectiveness of any national sample, at that age, in dealing with aggressive impulses and aggressive encounters. They were below average, as well, in relating to authority and in coping with achievement tasks, as they responded to the Sentence Completion problems. This does not necessarily mean that they actually performed less well, academically; but they displayed a less confident, less competent picture of their behavior when confronted with aggression, tasks to do, or people in authority such as teachers and parents. They scored in the international mid-range in the other two areas.

The 14 year olds scored low in the same three areas as the 10 year olds: achievement, aggression and authority. However, they showed above-average skill and composure in coping with anxiety and interpersonal relations.

Overall, the consistency in three areas, across age, suggests that the German students had most problems in dealing with aggression, peer encounters, and task achievement. The last score did correlate with achievement in Germany, so it matters. Taking account of other evidence, such as their reactions to the Story Completion instrument (Peck, et al., 1973, Vol. 5(a), p. 548), what the low score on achievement coping seems to reflect is not a lack of work in school but some very mixed feelings about it, and a refusal to look like a "good student", conforming to adult demands. Active negativism was visible, particularly among the 14 year olds. At 14, however, the German students seemed well able to cope with anxiety and with peer relationships.

Italy. In Stage I, both age groups in Milan scored high, internationally, in dealing with anxiety and interpersonal relations; both were low, however, in the way they reacted to achievement tasks. They also scored higher than average on the SAI Defensive scale, which was negatively related to actual achievement, in their case. The 10 year olds, additionally, dealt well with adult authority; the 14 year olds were average in this respect.

In Stage III, there was some similarity to Stage I; in the 14 year olds' high score for coping with anxiety, and the 10 year olds' coping with authority. The younger group now scored high on achievement coping, however, in contrast to the earlier sample. There were no other high-low reversals; however, for 14 year olds, dealing with interpersonal matters became less of a concern while coping with aggression became a greater problem for them.

These Milanese students rather consistently handled anxiety well. They showed no notable lack of coping skill except on achievement items in Stage I, and aggressive problems, for Stage III 14 year olds. The relatively high defensiveness scores in Stage I indicate a problem, insofar as this behavior had a mildly adverse effect on school achievement. These students were a little too touchy, avoidant, or otherwise irrational in their behavior (relative to the other samples), to be able to deal with life in a wholly composed, level-headed way. This did not, however show up as markedly low coping skill in almost any area in Stage III, so it should not be generalized as an "Italian" problem, but one that occurred in the Stage I population.

Japan. Two consistent findings in both stages and both age-groups, were a high score for coping with anxiety, and a low score for dealing with achievement tasks. Given the evidence from the International Study of Educational Achievement (Husen, Vol. II, 1967) of the marked superiority of Japanese students, as a group, to those in any other country, it would be ludicrous to interpret their low self-description on achievement coping in a literal way. It does not describe their actual academic process. What it almost certainly reflects accurately, however, is their subjective sense of falling short of the extremely high academic expectations which they correctly feel are levied on them by their families and their society and which most of them have strongly internalized.

It may be part of this same pattern that made them portray themselves as coping with anxiety in a composed, practical way. Most of them have experienced a lot of anxiety about their own performance. It might be said, they have had a lot of practice. This does not protect them from experiencing anxiety. Indeed, they seem to have gone through life with some built-in conflicts between their strong inner feelings, sometimes actively hostile ones, and the scrupulously controlled demeanor they displayed outwardly (Peck, et al., 1973, Vol. 5(b), p. 1624).Nonetheless, they showed practiced skill at containing anxiety. Their low defensiveness scores (SAI, Stage I) may reflect this practiced skill at dealing with inner tension. Whatever they may feel, they school themselves to act in a sensible, disciplined manner.

They showed less skill in dealing with authority, in two of the four samples; or in handling aggression, in Stage I. In Stage III, both age groups showed a high order of skill in peer relationships.

Mexico. Almost with the visible ebullience that so many young Mexicans delight in expressing,their self-portrayals radiated confident competence to deal with achievement tasks (all four samples), aggression (three samples), and anxiety (three samples). In Stage I, both age groups displayed much less assured skill in dealing with peers or adult authorities. In Stage III, however, both age groups actually scored high on these dimensions; and low on none.

The 14 year olds in Stage I did score high on defensiveness. Putting together their perceived lack of skill in dealing with people, and the very strong emphasis in Mexican culture on that very skill (Diaz-Guerrero, 1975), it may be understandable that they showed the kinds of behavior described by the SAI Defensive scale. This issue would pose maximum tension for them.

U.S. - Austin, Texas. These students were completely consistent on all four samples on two things. They portrayed themselves coping effectively with achievement but much less effectively with anxiety. In three of the four samples, except for the Stage I 10 year olds, they also scored high on coping with peer relations. In another three samples, except for Stage III 14 year olds, they scored low, internationally, on coping with adult authority. In Stage III, both age groups also scored low for dealing with aggression.

In Stage I, the 10 year olds were notably undefensive, while the 14 year olds were quite defensive.

Summing up, these young Texans tended to get along well with peers and take work seriously. They were not at ease or effective in handling aggression or anxiety, however, nor did they deal very competently with people in authority, compared with other national samples. This looks like an other-directed, conforming pattern of behavior that lets them get along, but costs them considerable discomfort and uncertainty whenever people get unpleasant or domineering.

U.S. - Chicago, Illinois area. In the communities around Chicago, the students resembled the Austinites in a number of ways. In three of the four samples, they showed good achievement coping; but in all four samples they were low in coping with anxiety; and in three samples, low in coping with authority.

They were less consistent in handling aggression: high in Stage I 10 year olds; low at both ages in Stage III. Interpersonal coping skills were low in Stage I 14 year olds; but high, in Stage III 10 year olds. They were in the mid-range on defensiveness, in Stage I.

Overall, they look much like the Texas students: respecting work but unable to stand up to adults in a reasoned, composed way. They show less skill than the Texans at peer relations, but the same relative incapacity to cope with anxiety.

These do appear to add up to some general "American" traits, so to speak: an acquiescent competence at work tasks; difficulty in dealing rationally and comfortably with adult authority; and an apparently untutored, unpracticed lack of skill or composure in dealing with anxiety. The latter two deficiencies might well be addressed more widely, thoroughly and effectively by American society and American education.

Yugoslavia. Three of the four samples, except Stage II 10 year olds, coped well with adult authority. All four samples had low scores for coping with aggression. The 14 year olds in both stages coped well in peer relations, while the Stage III 10 year olds ranked low in this. Both ages in Stage I had trouble dealing with anxiety, whereas both ages handled it well in Stage III.

The one consistent problem that might deserve remedial attention, was the children's relative difficulty in coping with aggression. Teachers and parents seemed to have taught these children how to relate effectively to adults, so there would seem to be an open channel at communication for any educational effort.

In other respects, individual, age and cohort differences are too great to allow sample generalizations about these children of Ljubljana.

Some General Observations

For the most part, the individual differences within countries combined with the differences between age levels and between successive samples make many "universal" generalizations about human nature quite untenable. Further, except in a few instances, simple generalizations about "national character," or more properly, "national coping style" are not supportable from the present evidence. This is by no means to say that nothing useful has been discovered. What the evidence does emphasize is that sampling differences -- especially of age, sex, SES, but even in presumably "equivalent" successive cohorts, make it necessary to discover and describe the properties of each new sample, and not assume any generalized pattern until it has been tested and retested by multiple replications.

The useful sets of scientific formulations thus become much more situation-specific. They specify the socio-ecological circumstances, just as biologists must specify the characteristics of an area when trying to unfathom how and why a given species eats, breeds and survives as it does.

With respect to having coping skills, the evidence indicates that national culture does have an influence; but so do sex, age, SES, and a host of individual and societal characteristics and events which no feasible research design can ever completely capture, measure and trace with absolute accuracy. The comparative study of children from many societies has indeed proven what we were rather sure of, in advance: there is no such thing as a single model of "human nature," divorced from the particulars of a given culture and a given individual history.

As the other parts of this report illustrate, it has proved possible, nonetheless, to identify some dimensions of coping behavior and attitude which have similar or identical meaning in at least these eight cultures. By considering one culture at a time, it has also proven possible to explain a usefully substantial part of school achievement within each culture, using a combination of these "universal" measures and some other, culture-specific dimensions which are derived from cross-culturally usable instruments.

Table I

National Profiles of Self-Portrayed Coping Skills

Site	Instrument	Stage I				Stage III			
		10 Year Olds		14 Year Olds		10 Year Olds		14 Year Olds	
		High	Low	High	Low	High	Low	High	Low
Brazil	Sentence Completion	Achievement		Achievement Aggression Authority	Interpersonal		Achievement Anxiety Authority Interpersonal	Anxiety	Achievement Aggression Authority Interpersonal
	SAI								
England	Sentence Completion	Achievement Interpersonal					Aggression Anxiety Interpersonal		Aggression Anxiety Interpersonal
	SAI			Defensive					
West Germany	Sentence Completion	No data					Achievement Aggression Authority	Anxiety Interpersonal	Achievement Aggression Authority
	SAI	No data							
Italy	Sentence Completion	Anxiety Authority Interpersonal	Achievement	Anxiety Interpersonal	Achievement	Achievement Authority		Anxiety	Aggression
	SAI	Defensive		Defensive					
Japan	Sentence Completion	Anxiety	Achievement Aggression Authority	Anxiety	Achievement Aggression	Anxiety Interpersonal	Achievement	Aggression Anxiety Interpersonal	Achievement Authority
	SAI		Defensive		Defensive				
Mexico	Sentence Completion	Achievement Aggression Anxiety	Authority Interpersonal	Achievement Aggression Anxiety	Authority Interpersonal	Achievement Aggression Authority Interpersonal		Achievement Anxiety Authority Interpersonal	
	SAI			Defensive					
U.S. Austin	Sentence Completion	Achievement	Anxiety Authority	Achievement Interpersonal	Anxiety	Achievement Interpersonal	Aggression Anxiety Authority	Achievement Interpersonal	Aggression Anxiety Authority
	SAI		Defensive	Defensive					
U.S. Chicago	Sentence Completion	Achievement Aggression	Anxiety Authority		Anxiety Authority Interpersonal	Achievement Interpersonal	Aggression Anxiety	Achievement	Aggression Anxiety Authority
	SAI								
Yugoslavia	Sentence Completion	Authority	Achievement Aggression Anxiety	Authority Interpersonal	Aggression Anxiety	Anxiety	Aggression Interpersonal	Achievement Anxiety Authority Interpersonal	Aggression
	SAI		Defensive		Defensive				

SEX AND SOCIOECONOMIC DIFFERENCES

SEX DIFFERENCES

One-way analyses of variance were run, in each country, comparing the sexes on the Sentence Completion, Occupational Values, Views of Life (Stage III only), Social Attitudes Inventory, Raven, Reading Achievement, Math Achievement, Grade Point Average, and the Peer Behavior Rating Scale items. The results are shown in Tables 1 and 2.

It should be noted first of all, that the factor structures of all countries, on the Sentence Completion and Occupational Values instruments, were compared through the program RELATE. Thus, we were able to determine which factors of these two instruments were consistent and very similar in content across countries. As it turns out, there were at least 6 factors in the Sentence Completion instrument which were virtually universal. The Occupational Values factors were not as consistent, but we will see that some comparisons can be accurately made. Only those factors which exhibited a RELATE coefficient of at least .8 (interpreted similar to a correlation coefficient; most actually had at least .9) across countries will be reported.

Stage I

In the first sample, there were 7 Sentence Completion factors which were virtually universal across all countries. These include coping effectiveness factors in each of the behavior areas of anxiety, aggression, task achievement, and authority. Additionally, there were two factors related to interpersonal relations: coping effectiveness, and neutral not negative affect toward interpersonal relations. Finally, there was an attitude factor which consisted of a positive attitude toward authority, interpersonal relations, and task achievement.

Males scored higher on virtually all of the coping factors. All 8 countries in Stage I showed sex differences in favor of males in coping with anxiety. In coping with task achievement, males scored higher in Austin and Mexico. In coping with authority, Brazil, Italy, and Mexico had males scoring higher than females. Males also did better in coping with interpersonal relations in Brazil, England, Italy, and Mexico.

Sex Differences on the other interpersonal relations factors, neutral not negative affect, were not so consistent, however. Males scored higher on this factor in Brazil, Italy, Mexico, and Yugoslavia, while females were higher in Chicago and England. In coping with aggression, males again did better in Brazil and Italy, while females coped better in Chicago and England. Finally, females had a better attitude toward authority, interpersonal relations, and task achievement in Chicago, England, Austin, and Yugoslavia.

The Occupational Values factors were more idiosyncratic in each country. Two factors did emerge, however, that were quite similar in many countries. One of these was a factor which combined such intrinsic values as altruism.self-satisfaction, intellectual stimulation and variety, with not valuing success, prestige, and economic returns. This factor reflects a greater concern with intrinsic values rather than extrinsic rewards. Females consistently scored higher on this factor than males. Austin, Chicago, Italy, and Japan all had this factor in common (again, determined by RELATE values), with females scoring higher. England also had females scoring higher than males on a slightly different version of this factor.

Another factor which occurred in many of the countries involved placing greater value on following father's occupation and less value on such variables as intellectual stimulation, variety, independence, and associates. In all countries, understandably, males tended to place greater value on following father's occupation, while females were more interested in the intrinsic values.

The combination of these two factors shows a fairly consistent pattern of sex differences that is not unexpected. Males tend to place greater value on following father's occupation, and on such extrinsic rewards as success, prestige, and economic returns. On the other hand, females place greater value on intrinsic variables such as altruism, self-satisfaction, intellectual stimulation, variety, and association.

There were other sex differences that were not so consistent. Chicago, Mexico, and Yugoslavia had sex differences on a factor valuing independence and pleasant associates but not creativity. In Chicago, females scored higher on this factor, but in Mexico and Yugoslavia males scored higher.

Another factor was valuing management and not valuing such things as success, security, surroundings, and associates. Males placed greater value on management than did females in Chicago, Mexico, England, and Yugoslavia.

In England and Italy, females placed greater value on surroundings and associates than did males. In Yugoslavia and Japan, females placed greater value on security and less on creativity than did males.

There were no sex differences on the Social Attitudes Inventory in Stage I.

The results of these comparisons indicate that there were few sex differences in career values that were universally present in all cultures. The presence of similar differences within some subsets of cultures,but not others, indicate that sex differences between males and females are the result of cultural training.

Aptitude and Achievement

The most notable pattern to emerge from the data was the fact that there were significant sex differences in Grade Point Average and Peer Ratings in favor of the girls, in six or seven of the eight research locations. This occurred despite the fact that there were no systematic sex differences in Raven Aptitude scores, no significant sex differences whatever in the Mathematics Achievement scores, and sex differences in favor of the boys on Reading Achievement in four of the eight samples. Boys had slightly higher Raven scores than girls in Brazil, Mexico and Chicago. The girls in other locations had somewhat higher Raven scores than the boys. The greatest sex differences occurred in Mexico City and Tokyo. The smallest sex differences occurred in England and Italy. Although girls excelled boys in Reading in England, Italy, Japan and Austin, the boys performed better than the girls on the standardized achievement test of Reading in Brazil, Mexico, Chicago, and Yugoslavia.

The traditional expectation in American education has been for girls to outperform boys of the same age in academic work, at least through elementary school. Indeed, the explanation has sometimes been put forth in textbooks on child development that girls are physically more mature than boys from birth onward, by almost a year, and that this accounts for their superior performance. The facts from the present study indicate that this presumed superiority does not exist, in any systematic sense. In Austin, the girls do perform better than boys; but in Chicago, the reverse is true. The objective measures of achievement show no systematic superiority of either sex over the other when one considers the way in which differences favoring boys in some societies are balanced out by differences in favor of girls in other societies.

Something very definitely is at work, however, in most of these countries, to give the girls better reputations with both teachers and agemates. Except in Mexico and England, girls were given consistently higher grades than boys, on the average, by their teachers. In all countries except Mexico, the Peer Behavior Ratings given to girls for academic performance were higher than the ratings given boys by their classmates. Peers rated girls higher than boys for performance in nonacademic pursuits, as well, except in Chicago and, again, in Mexico. Only in Mexico did boys have better reputations for getting along with teachers. Everywhere else, girls got higher scores on this rating scale. The largest differences in Grade Point Average and the peer reputation for academic effectiveness occurred in Austin. The second largest difference in grades favoring girls occurred in Sao Paulo but the difference in peer ratings there was extremely small. The smallest sex differences on both of these measures occurred in Mexico City, where it was actually reversed, favoring the boys to a slight degree.

In London, boys won somewhat higher grades from their teachers, even though their objective performance in reading was slightly less effective than that of the girls, and despite the fact that their own classmates did not believe they work as hard and effectively as the girls.

Otherwise, except in Mexico and England, something about girls' ways of behaving in school earned them better grades than boys, quite apart from their actual mastery of reading and mathematical skills. Observers in all of these societies have suggested that it is probably the more quiet, conforming demeanor of girls that earns them this preferential evaluation, not only from teachers but from their classmates.

Peer Behavior Ratings

In addition to the findings just reported, girls tended to be rated somewhat higher than boys for their ability to work with people of their own age (except in Mexico). There was no systematic sex difference in reputation for coping with anxiety. Girls were rated higher than boys for this capability in Brazil, Italy, Chicago, Austin and Japan; but boys were rated higher in Mexico, England, and Yugoslavia. The differences tended to be quite small in most places. Peers rated girls better able to cope with aggressive treatment in Brazil, Chicago, Austin and Japan. The reverse was true in the other four countries. These differences were all very small. There was no universal tendency to see girls or boys as more effective in dealing with hostile encounters.

The BRS summary score gave a small superiority to girls in all countries except Mexico. The difference in favor of girls was relatively greater in the Chicago and Austin samples.

Stage III

There were five Sentence Completion factors which were virtually universal in Stage III. These corresponded to coping in each of the behavior areas of anxiety, interpersonal relations, task achievement, authority, and aggression. There were not as many sex differences as in the first sample (Stage I), though males again tended to have better coping scores.

In coping with anxiety, males scored higher than females in Mexico, Austin, Brazil, and Germany, while females did better in Japan. Males did better in coping with aggression in Austin and Brazil. In Italy, males did better than females in coping with task achievement. In coping with authority, males did better in Italy and Brazil. In Coping with interpersonal relations, females did better than males in Austin.

There were more sex differences on the Occupational Values instrument. The pattern appears similar to Stage I. Again, there was a basic factor of placing greater value on various combinations of altruism, self-satisfaction, associates, surroundings, intellectual stimulation, and variety and less value on success, prestige, and economic returns. Females scored higher on this factor in all countries except Mexico.

A factor of following father's occupation also showed up in several countries. Males placed greater value on this in Chicago, Austin, Yugoslavia, Italy, and Brazil. This pattern is similar to Stage I, with females placing greater value on intrinsic variables such as altruism, self-satisfaction, associates, intellectual stimulation, and surroundings. Males, on the other hand, more highly valued extrinsic factors such as success, prestige, and economic returns, and also placed greater value on following father's occupation than did females.

There were eight other instances of sex differences in Occupational Values on factors common to only two countries. All of these cases involved females placing greater value on such variables as surroundings, associates, esthetics, intellectual stimulation, and security. Males tended to place greater value on management, success, prestige, and economic returns.

Quite a few sex differences emerged on the Views of Life instrument in Stage III. Those that occurred in more than one country will be cited. Italy, especially, had many significant sex differences on the Views of Life. It is interesting that most of the significant differences in Italy were also found in Japan. For example, in both of these countries, females expressed a more internal locus of control than did males, both generally and academically.

Females in Italy and Japan also had a greater preference for independent action, as opposed to dependence and reliance on others, than did males. They had more intrinsic work values than males, valuing work for its own sake, rather than for the rewards it may bring. This finding was also evidenced in Chicago. Finally, in both Italy and Japan, females had a less positive self-concept than did males. It is interesting that they are so self-reliant and perceive themselves as being in control, and yet have a more negative self-concept.

Females in England and Brazil also had a less positive self-concept than did males. Males had a greater tendency than females to initiate their own actions on problems, as opposed to following others or waiting for suggestions, in Mexico, Brazil, and Italy. In Chicago and Italy, males had a greater preference than females for doing their work by themselves rather than working with others.

On the Social Attitudes Inventory, sex differences were significant in only two countries. Females reported that they were better copers than did males in Brazil and Austin.

In sum, there were various instances of sex differences in both samples. On the Sentence Completion instrument, males in both samples consistently appeared to cope with anxiety more effectively than females. Other findings were less consistent although, especially in the first sample, there was a tendency for significant differences to favor males. There were few significant sex differences on this instrument in the second sample, however.

In regard to Occupational Values, it was relatively universal for males to place greater value on following father's occupation and on such extrinsic rewards as success, prestige, and economic returns. Females more highly valued factors which might be considered intrinsic or which described a pleasant work environment. These include altruism, self-satisfaction, surroundings, associates, and intellectual stimulation.

Some General Implications

Considering coping skill in the five areas of behavior, the sexes were equal in the majority of comparisons. In all countries except England, Japan, and the U.S., whenever a sex difference occurred, it showed males coping more effectively than females. The exceptions were that girls in England and Chicago coped better with aggression in the first sample; while in the second sample, Japanese girls coped better than boys with anxiety, and Austin girls were better at interpersonal relations.

In the second sample, Austin and Brazilian girls also rated themselves higher in overall coping skill on the Social Attitudes Inventory, the only sex difference to appear on this instrument, in either sample.

This evidence suggests a general tendency in all of these societies for boys to display somewhat greater degree of independent initiative and success in confronting and handling most everyday problems. In the few cases where girls excelled, they did so by handling aggression more calmly and constructively, by mastering anxiety better, or by handling interpersonal relations with agemates more effectively. The Views of Life data showed no universal sex differences. Some national patterns favored girls; some, boys.

The preponderant lack of sex differences, and the fact that girls learn to cope better than boys in some respects, in some societies, would seem to argue that sex differences in coping skills and attitudes are induced by each culture's pattern of traditions, expectations and training for male and female sex roles. Most of these societies seem to train boys to cope better with anxiety (though not Japan, in the 1968 sample), and some of them train boys to cope better with aggression and with authority. Women do not appear to be innately the "weaker sex," when it comes to coping with major problems of life, although they are not trained as well to cope, it would also appear, at certain times, in certain societies (Pearlin & Schooler, 1978, p. 15).

The career values of boys and girls, and the patterns of attitude and behavior they imply, similarly indicate that sex differences are induced by one's particular culture, not rooted in some unchangeable, presumably biological predisposition. Girls preferred altruism, self-satisfaction and intellectual stimulation, while boys preferred success, prestige and economic returns; but only in four of the eight countries. In all countries, girls were even less inclined than boys to follow their father's occupations; but that is scarcely surprising, given the sex-stereotyping of most occupations in all these societies.

Even if there should be a sex-based, temperamental tendency for more boys than girls to be active, independent copers, interested in achieving practical success, the evidence from this study shows that cultural conditioning is capable for overriding such a difference. In some societies, the results came out the other way.

Aptitude and Achievement

There were no significant, generalized sex differences in aptitude, as shown in the Raven scores, in either Stage I or Stage III. There was no generalized sex difference across countries in Mathematics Achievement in Stage I although in Stage III, in all countries except Brazil and italy, the girls outperformed the boys. Neither in Stage I nor in Stage III was there any systematic sex difference in Reading Achievement. There were quite consistent national patterns of sex differences although the differences were relatively small. In both Stage I and Stage III, boys outperformed girls on the standardized Reading test in Brazil, Mexico, and Yugoslavia, whereas girls outperformed boys in England, Austin, and Japan. The sex differences in Italy were tiny in both stages. (The sample in one of the two stages was missing for Chicago and Germany.) It might be noted that the trend of the sex differences in these various countries did not systematically parallel the sex difference in Raven aptitude scores, except in a few cases.

Thus, schooling in all of these countries tends to produce a good approximation of sexual equality in the knowledge and skills acquired by the boys and girls. The boys are served slightly better in Brazil, Mexico, and Yugoslavia while girls achieve a little greater competence in Austin and Japan, particularly where reading is concerned.

It is all the more interesting, therefore, to find that in Stage III the teachers gave girls higher Grade Point Averages than boys in every country, with an average sex difference of .2 SD's. The sex difference was least in the case of Italy and Yugoslavia, greatest in the two American stations, Chicago and Austin. This confirmed or even strengthened the pattern demonstrated in the Stage I data, where six of the eight countries, except for Mexico and Italy, showed the same superiority of girls over boys in Grade Point Average. Research in America and Western Europe has shown that teachers tend to favor girls over boys, not because the girls necessarily outperform the boys intellectually and academically, but because girls tend to act in more quiet, compliant ways that teachers find easier to live with. Boys are somewhat more apt to be physically restless and to act or speak impulsively, even though it may be only a slight deviation from the teacher's preference. Perhaps these same reasons produce the sex difference in GPA in all of the countries. The size of the discrepancy is so small, however, (from 0 to .3 SD's in Stage III) that boys probably are not severely upset by this preferential treatment the teachers give to girls.

The implied pressure for both boys and girls to conform to an essentially feminine pattern of behavior appears relatively greatest in the United States and either minor or non-existent in Mexico, England, Italy, and Yugoslavia.

Behavior Rating Scales

There were systematic sex-typed patterns of expected behavior within particular countries, as the young people, themselves, saw it. In Stage III, for example, boys had higher reputations than girls on every scale in Mexico. In Italy, the same pattern of superior reputation for boys was observed on all but two scales: Controlling aggressive impulse and getting their own way (self-assertion).

In contrast, girls tended to score higher than boys on most aspects of coping behavior in Germany, Yugoslavia, Chicago, and Austin. In Japan, girls scored highest on working hard in school, persisting at tasks (implementation) and showing initiative; but they scored lower than boys on the other scales.

Only one scale unequivocally showed a universal pattern. This was the one that asked "Who has the best ideas?" (solver). Everywhere except in Italy the boys had higher reputations than girls for this characteristic; and in Italy the sexes were equal.

The anxiety item in Stage III, "Who never seems to worry about anything?", found the boys scoring higher in every country except Germany, where there was no sex difference. There was a strong trend in Stage III for girls to score higher than boys on getting along with teachers. This was true everywhere except in Mexico and Italy.

A direct comparison with the Stage I findings is difficult for two reasons. Many of the items were reworded enough so that differences in phrasing between the two versions of the instrument might well explain differences in the findings. For example, the item that represented coping with anxiety in Stage I read, "Who does not get upset easily when things go wrong?" In Stage III this was changed to, "Who never worries?" This change was made because the observations gathered in the course of the Stage I testing suggested that the early wording of the item was interpreted by some children, in some countries, in such a way that they thought "upset" meant getting angry, although the great majority of children everywhere did interpret it as getting anxious. In any case, there is enough uncertainty about the exact equivalence of the wording in the two stages to make direct comparison of the findings on this item rather uncertain.

A similar problem existed with the interpersonal relations item. In Stage I, this was phrased, "Who works best with others?" In Stage III it read, "Who gets along best with students in your class?" The emphasis on "work" in Stage I, and its absence in Stage III, could easily make it seem a substantially different item to the children in the two different samples. In Stage I, girls had exceeded boys on this item everywhere except in Mexico, whereas in Stage III the countries were split almost evenly on the direction of the sex difference that was observed.

Another difference between the two stages was the effort to reduce the halo effect that had been found in the Stage I instrument by first giving a popularity item, which was not used in the analyses, and then asking the children to nominate classmates on the remaining scales without regard to their personal feelings of liking or disliking. This worked quite well to reduce the halo effect in Stage III but it may also have modified the use of items even when they were identically worded in Stage I and Stage III. An example is the academic task achievement item, phrased in Stage I as, "Who works hardest at their lessons?" and in Stage III, "Who works hardest in school?" In Stage I, girls had exceeded boys everywhere except in Mexico but in Stage III the sex difference was in the other direction in four of the original countires, plus Germany.

The superior reputation of boys in Mexico was just as evident in Stage I as in Stage III. There was also almost a duplication of pattern on the self-assertion item in the two samples. Whether the item read "fighting hardest to get one's own way," as in Stage I, or "usually getting one's own way," as in Stage III, boys exceeded girls in Mexico, England, Yugoslavia, Chicago, and Austin both times. Girls exceeded boys in Brazil and Italy both times, with the addition of Germany in Stage III. The only slight shift between the two stages was in the case of Japan, where there was a very small reversal of the Sex difference.

Clearly, children in all countries, of both sexes, think that boys have "the best ideas" somewhat more often than do girls. Beyond this, there simply is no universal agreement on the superiority of either sex, across all cultures. There are, however, quite definite patterns of attributed superiority, albeit not of any great degree, which systematically vary from country to country. Thus, as has long been thought, sex roles and sex-typed behavior definitely appear to be culturally induced, insofar as this quite solid evidence from peer ratings bears on the question. In particular, neither boys nor girls are universally seen as demonstrating superior coping skills. In some countries one sex is viewed as more effective, while in other countries the reverse is true. Actually, the only country where male supremacy is given serious weight by children of these ages is Mexico. The fact that the next-closest approximations to this pattern occur in Brazil and Italy is not surprising. The Latin tradition of male supremacy does appear to be reflected in these data. Even in Brazil and Italy, however, agemates view girls more favorably than boys in a number of important aspects of coping behavior.

SES DIFFERENCES

Analyses of Variances were also used to test for SES differences between upper-middle and lower-middle class students on the factor scores of the coping and value measures, and on aptitude, achievement, and peer rating scores. The results are shown in Tables 1 and 2.

Stage I

In Stage I, there were few significant SES differences on the factors of the Sentence Completion instrument. Indeed, the only factor in which there were SES differences in more than one country was in coping with aggression. Middle-class students appeared to cope more effectively with aggression than lower-class students in Brazil, Italy, and Japan.

There were quite a few more social class differences on the Occupational Values instrument. In particular, middle-class students tended to place greater value on following father's occupation than did the lower class. In Mexico, Austin, and Italy, there was a common factor which involved valuing following father's occupation, but not valuing intellectual stimulation and variety. The middle class had higher scores on this factor in all three countries. England and Chicago had similar SES differences on slight variations of the factor. Brazilian middle-class students also valued following father, but not associates. Yugoslavia had a similar factor in which middle-class students again valued following father more than the lower class, but placed less value on esthetics and surroundings. Thus, all countries but Japan had SES differences on a factor having to do with following father's occupation. In all cases, middle-class students tended to place greater value on following father in his work, and less on other variables such as intellectual stimulation, variety, and associates.

Another SES difference occurred in several countries in which middle-class students tended to place greater value on independence than did the lower class. Brazil, Italy, Chicago, and Mexico all exhibited this trend. There was a tendency for the middle class to place less value on variables such as self-satisfaction and security in these factors.

One other trend was for the middle class to place greater value on management than the lower class. SES differences were significant in Austin, Chicago, Mexico, and Italy, with the middle-class students placing greater value on management and less on variables such as success, security, surroundings, and associates.

Finally, in Yugoslavia and Japan, middle-class students placed greater value on creativity than the lower class. In England and Chicago, lower-class students placed greater value on success and less on esthetics than did the middle class.

Additional SES differences occurred on the Social Attitudes Inventory (SAI), or self-report, measure of coping effectiveness. In England and Chicago, the lower-class students reported better coping, while in Yugoslavia they reported less effective coping than did the middle class. However, a more consistent pattern emerged in that the lower class in several countries reported greater defensive behavior in their coping strategies. This difference was significant in Austin, Chicago, Italy, Mexico, Yugoslavia, and Brazil.

Aptitude

There was a universal status difference, in all countries, in the Raven aptitude score. There was a large difference between countries, however, in the size of this status differential. The smallest difference was in Ljubljana, Yugoslavia where the separation of the two status levels was only one-fourth of a standard deviation. The next smallest status differences were in Italy and England. The largest difference occurred in the Chicago sample, where the distance between the two status groups was a full standard deviation. The next largest differences occurred in Mexico City, with .8 of a standard deviation, and in Tokyo, where the status difference was .6 of a standard deviation.

Thus, in half or more of the countries, the status differences are probably large enough to make a noticeable practical difference in the ability of the children to master academic knowledge and skills. At the same time, the size of the status difference varies so considerably from country to country that any naive genetic explanation of this difference is likely to be incorrect. Whatever the causes of this difference between the upper-middle class and the skilled working class, they obviously vary a good deal from one country to another. Cultural forces act to minimize this difference in places such as Ljubljana and Milan, while a different pattern of social forces appears to maximize such differences in the Chicago area communities and in Mexico City.

There is an additional fact which may cause this status difference to be underestimated in some of the locales. Much larger numbers of children were tested than were finally included in the sample that was analyzed in each place. A major criterion for including subjects was the completeness of their test data. Thus, if they were not in school on some of the days when certain instruments were administered, and this could not be made up at a later time, the children who missed those days were dropped from the sample. In other cases, the child may have been present for all testing periods but his ability to express himself with reasonable legibility or logical coherence may have been so limited that his responses to some of the instruments were unreadable or uninterpretable. Such a child was also dropped from the sample. In Austin, at least, at the ten-year-old level more than fifteen percent of the working-class children who were initially tested had to be dropped from the sample because their written answers were either highly illegible or because they simply did not make any clear sense. This problem occurred most often on the free response instruments. Such functional illiteracy was a distressing thing to observe at the fourth and fifth grade levels. It must be emphasized that these were the children of the skilled working group. They were not the highly disadvantaged children of the unskilled working class, or "children of poverty." In contrast, almost no upper-middle class children had to be excluded for this reason.

The consequence, in Austin at least, is that the real difference between these two status groups in intellectual efficiency and academic performance is unquestionably larger than the scores of the finally selected samples would indicate. This phenomenon was observed in the other national samples, but with considerable variation from country to country.

Achievement

All three measures of achievement showed the same, universal status difference, with the upper-middle children substantially outperforming the working-class children. This difference in performance was greatest in Mexico City, Austin and Tokyo. The smallest differences in both Math and Reading Achievement occurred in Sao Paulo, Ljubljana and Milan. The relative size of the difference tended to be the same, or very similar, in Math and in Reading, within any one country.

While the status differences in achievement tended to parallel fairly closely the status differences in aptitude, there were several notable departures from this pattern in the way Grade Point Averages were assigned to children of the two social groups in different countries. In Ljubljana, for example, although the status differences in Aptitude and objectively-measured Achievement were relatively small compared with other countries, there was the largest difference in the grades teachers assigned. Children from professional and managerial families won considerably higher grades than their working-class school mates. In Mexico City, on the other hand, although there were large status differences in Aptitude and Achievement scores, the difference in Grade Point Average was less than half as large as in Ljubljana. The difference still favored the upper-middle-class children, as was true in all the other countries. In Chicago, the status difference in Grade Point Average was about the same size as the status differences in the standardized achievement scores; but the difference on all three of these performance measures was only half as large as the difference between the two status groups on the Raven measure of Aptitude. In the other national samples the status differences in Grade Point Average tended to parallel fairly closely the size of the status differences on the other measures of Aptitude and Achievement.

The situation in Brazil deserves special mention. There, more than ninety percent of children at the working class level leave school before the age of fourteen. Consequently, those fourteen-year-olds from this status level who are still in school are apt to be a highly selected group, the most intelligent, the most strongly motivated to succeed and whose parents are most eager for them to be well educated. Therefore, one would expect the average ability and performance scores of this group to exceed the average scores of the fourteen-year-old upper-middle class group.

Significantly, although the Raven scores still showed an aptitude differential in favor of the middle class, at fourteen, it was only half as large as at ten years of age. Similarly, the status differences in Math and Reading Achievement decreased by two-thirds from ten to fourteen. The relativity of teacher grading is vividly evident, however, in the fact that teachers gave substantially higher Grade Point Averages to the fourteen-year-old upper-middle class children than they did to the high status ten-year-olds; whereas teachers gave substantially lower Grade Point Averages to fourteen-year-old working-class children than they gave the ten-year-olds. Thus, despite the greatly reduced difference between the Brazilian status groups at fourteen, in objectively-measured aptitude and achievement, the teachers substantially increased the difference in grades, in favor of the upper-middle class students.

In none of the other countries did working class children leave school by fourteen to anything like this degree. The drop-out rate was practically zero in Tokyo, and low in the other nations. Consequently, except in Brazil, the working class samples which were studied were reasonably representative of that segment of the total age group, in that community.

Peer Behavior Rating Scales

The partial segregation of children into different groupings according to sex, in some schools, or according to the dominant social economic background of the area served by the school, makes it necessary to be extremely cautious about interpreting apparent status or sex differences, even within an age group. The fact that the reference populations were different at ten and fourteen makes any overall comparison of the two age groups relatively meaningless. Nonetheless, it may not be an entirely random happenstance that in all but two countries (Brazil and Mexico), the upper-middle class children received higher ratings than their working-class schoolmates for effectiveness in performing Academic Tasks. Somewhat the same pattern appeared on the rating of performance in Non-Academic work. Except in Brazil and England, upper-middle class children received higher ratings, on the average. In seven of the eight countries, except for Brazil, upper-middle class children were rated better at getting along with teachers. The higher status children were also rated better at working with agemates than their working class counterparts, except in Brazil and England where there was a slight reversal in relative standing. Exactly the same pattern occurred on the item about handling anxiety. Everywhere except in Brazil and England, children rated the upper status group better at this than the lower status group. Again, except for Brazil and England, upper-middle class children were reputed to handle aggression more effectively than working-class children. Averaging the standings of all the items, on the BRS Summary score in all countries except Brazil, the high status children had better reputations with their agemates for effectiveness in coping with this diverse array of problems. It might be remembered that in Sao Paulo and Mexico City there was a relatively small difference in the way teachers graded the two status groups, which appears to correspond with the lack of difference in peer reputation. Otherwise, in the other countries, the direction of peer judgments was the same as the objective measures of performance and as teacher grades: in all cases these were higher at the upper-middle class level.

Stage III

There were few social class differences in the Sentence Completion factors in Stage III. Indeed, the only common factor where SES differences were significant in more than one country was coping with aggression, in which the lower class showed more effective coping in Austin and Brazil.

There were more differences on the Occupational Values Instrument. As in Stage I, a factor including following father's occupation was almost universal across countries. SES differences were significant in many of these, as the middle-class students placed greater value than the lower class on following father's occupation (and often disvalued management) in Chicago, Germany, Mexico, Italy, and Brazil. In addition, England and Mexico had another factor in common, where the lower class more highly valued intellectual stimulation, variety and self-satisfaction, as opposed to following father's occupation.

Middle-class students also tended to place greater value on esthetics and independence than did the lower class in many countries. England, Chicago, Mexico, and Brazil all had factors in which the middle class placed significantly greater value on independence than did the lower class. Though there was not a universal factor in common here, factors were identical between at least two countries. Middle-class students also placed greater value on esthetics than did the lower class in Chicago, England, Germany, and Mexico. This was as opposed to other variables such as success and security. Finally, in Italy and Japan lower-class students more highly valued security and placed less value on creativity and prestige than did the middle class.

SES differences on the Views of Life were fairly scattered and inconsistent. Middle-class students did tend to express a more internal locus of control in Austin, England, Chicago, and Brazil.

Only two countries showed significant differences in self-report of coping effectiveness on the SAI. Lower-class students reported more effective coping than did the middle class in Mexico and Brazil.

Across stages, middle-class students in various countries consistently placed greater value on following father's occupation than did the lower class. There were many other differences, but these were generally less consistent. Similar trends did exist across stages, however. For example, middle-class students tended to place greater value on independence in both stages, and less on security and self-satisfaction, than did the lower class.

Aptitude and Achievement

By far the most universal and most pronounced differences in any aspect of this study were the large differences in Aptitude and Achievement between the two socioeconomic groups. In all countries, on the Raven, the upper-middle class children exceeded the skilled working-class children. The difference ranged from an extremely small .2 standard deviation in Yugoslavia to 1.0 SD's in Chicago.

On Mathematics Achievement, there was a similar, universal socioeconomic difference in favor of the upper-middle class group. This difference ranged from .2 SD's in Brazil and Germany to .9 in Japan and 1.0 in Mexico.

The difference in Reading Achievement scores was even greater, particularly in Stage III. The size of the difference ranged from a low of .4 SD's in Yugoslavia, Brazil, and Italy to a high of .9 to 1.0 in Japan, in Stage I and Stage III.

Grade Point Average, as assigned to teachers, universally favored the upper-middle class children in Stage I. The same pattern was evident in Stage III except in Brazil, where the working-class children actually received slightly higher grades than the upper-middle class children. The SES differences ranged from a low of .2 SD's in Brazil to .6 to .8 in Japan. Yugoslavia was highest or second highest in the size of the socioeconomic difference in GPA in Stage I and Stage III (.6, .7).

A comparison of the relative socioeconomic differences in these four measures in the different countries is instructive. A brief summary of each research station's pattern follows.

Brazil: A very small socioeconomic difference in Aptitude (.2, .4) was matched by small differences in Mathematics Achievement (.2, .2) and in Reading Achievement in Stage I (.4), although there was a large difference in Stage III in Reading (.8). Brazil had the lowest difference of all countries in GPA. This even amounted to a small reversal of the two social class groups in Stage III (-.2).

The Brazilian investigators report that the near-equality of these socioeconomically diverse groups is probably due to two factors. First, while the schools attended by upper-middle class students are better staffed and equipped, there is no selection of the students on grounds of aptitude. The schools attended by the working class, however, are more selective. In part, the more able, responsive students are admitted and retained; and, in part, such students are more likely to stay in school, especially by age fourteen.

A second factor arises from staff observations during the testing. They found the working-class students took it more positively and seriously than many of the upper-middle class youth, who tend to be more cynical and put less value on schooling, in general. For one thing, having more enriched experiences, the higher status youth see far less need for schooling, in the staff's experience. These two factors have an additive effect, tending to equalize scores across the social strata on both aptitude and achievement measures.

Mexico: A very large difference in Raven Aptitude scores (.8, .8) was matched by a very large difference in Mathematics Achievement (.6, 1.0), the second highest difference in Reading Achievement (.8, .8) and a difference in Grade Point Average that ranged from a rather small size (.4) in Stage I to the very highest difference (.8) in Stage III. Thus, the children of Mexico City started out with a very large socioeconomic difference in Aptitude and the schools maintained this difference in their performance on achievement tests. The GPA assigned by teachers appears to be proportionate to the large difference in Aptitude and Achievement. Nonetheless, the educational system did nothing to reduce the extremely large difference in either aptitude or performance of the children in these two different socioeconomic levels.

England: A moderate difference in Aptitude (.5, .5) was matched by a slightly larger difference in Mathematics Achievement (.6,.6), Reading (.6, .7) and GPA (.6, .5). The achievement differences were what might be expected from the Aptitude difference. The SES difference in GPA assigned by teachers also corresponded to the achievement difference. Teacher grades seemed to be unbiased by nonacademic considerations. However, as in the case of the first two countries, it is evident that the schools in London did not reduce the differences in performance that the initial SES Aptitude differences were likely to produce. They did not equalize the performance of children from the two socioeconomic levels.

Germany: A moderate difference in Aptitude (.5) was matched by one of the internationally smallest differences in Reading Achievement (.5). The difference in Mathematics Achievement was even smaller (.2) and there was almost no difference in GPA. These schools reduced the socioeconomic differences in Achievement, especially in Mathematics and in GPA, considerably below the size that would be expected from Aptitude, if it were allowed to operate uncorrected. The teachers appeared to be leaning over backwards to equalize the effects of schooling for the two different social levels. (This effect was not so evident in the area of Reading; but there was a curious lack of correspondence between Reading Achievement and the other measures of academic performance which was unique to West Germany.)

Italy: A moderate difference in Raven Aptitude scores (.4, .4) was matched by a similarly moderate difference in Mathematics Achievement (.4, .4), a moderate to large difference in Reacing Achievement (.4, .8) and a moderate GPA difference (.4, .6). The achievement levels of the two social class groups in Milan differed about as much as one would expect from the Aptitude difference. The GPA difference was about of the same order, indicating that teachers were not biased in assigning grades. As in most of the countries, it is clear that the schools did not equalize the performance skills of the two socioeconomic levels.

Yugoslavia: Yugoslavia was tied with Brazil for having the smallest socioeconomic difference in Aptitude (.2, .4). The differences in the actual achievement scores were somewhat larger but still among the smaller ones, internationally. The difference in Math Achievement was .4 SD's, and in Reading from .4 to .5 SD's. There was, however, a large social class difference in Grade Point Average. Something in the functioning of the society of Ljubljana helped the two socioeconomic groups start out nearly equal in Aptitude and stay reasonably close in academic achievement. The large difference in the average GPA of the two groups, however, is considerably greater than the differences in either Aptitude or Achievement could explain. It appears that the teachers tended to grade working-class children more severely than middle-class children, on some grounds which were different from academic achievement, alone.

Chicago: By far the largest socioeconomic difference in Aptitude scores occurred here (1.0, .8). Achievement test data were available only in Stage I. They showed a more moderate difference in both Mathematics and Reading (.6, .6). The smallest difference of all was in Grade Point Average, which was .5 in Stage I and only .1 in Stage III. In the Chicago area, the two socioeconomic groups started out far apart in Aptitude scores, were somewhat closer together in Achievement, and tended to be given quite similar grades by teachers. Since the two groups were from two separate communities, the relative similarity in GPA may partially be due to different levels of expectation. Nonetheless, the schooling of these children did appear to equalize their achievement somewhat, considering the very large differences in their Aptitude scores.

Austin: There was a fairly large difference in Aptitude between the two socioeconomic groups (.6, .6), a variable difference in the two stages in Mathematics Achievement (.8, .4), an even larger difference in Reading (.8, .7) and a fairly large difference (.6, .6) in GPA. Thus, the two socioeconomic groups started off quite far apart in Aptitude and stayed that way in their academic achievement, particularly in Reading. Teachers appeared to grade fairly, in the sense that the SES difference in GPA was the same or slightly less than the difference in Achievement or Aptitude. Nevertheless, it is clear that schooling in Austin not only did not equalize the performance skills of the children of the two socioeconomic levels; it actually tended to magnify the difference a little beyond what would be expected from the initial difference in Aptitude.

Japan: The two social class groups in Tokyo showed a moderate difference in Aptitude (.6, .5), an even larger difference in Mathematics Achievement (.6, .9), and the largest international difference of all in Reading Achievement (1.0, .9) and in GPA (.6, .8). While the two social class groups had moderately different aptitude levels, their differences in achievement were even more pronounced, especially in Reading. The teachers appeared to grade fairly, in the sense that the social class discrepancy in GPA was of the same or less magnitude as the difference in standardized achievement scores. At the same time, it appears that the schools of Tokyo tended to accentuate the social class differences considerably, beyond what the initial differences in aptitude would tend to produce.

Behavior Rating Scales

There was a predominant trend for the middle-class children to have higher reputation scores on all scales, in most countries, in both stages. This SES difference was greatest in Italy, Yugoslavia, and Japan in Stage III. The trend was opposite to this, however, in Brazil and England in Stage I; again in Brazil, and especially in Mexico in Stage III. In these three countries, the working-class children excelled the middle-class children on many or all scales.

No significant interactions of SES x SEX were observed, with one exception. The scale on self-assertion showed the boys even higher than the girls at the working-class level children on many or all scales.

These findings in Stage III quite closely paralleled the findings in Stage I, where the reputation of the upper-middle class children exceeded that of the working-class children on all items except the one for coping with anxiety and the one for dealing with aggression, where no systematic differences were observed. There were no Behavior Rating Scales in Stage I which showed interaction effects for SES x SEX.

Some Implications

Considering the large SES differences in aptitude and achievement, everywhere except Brazil, and considering the significant relationship of coping skills and attitudes to achievement in all countries, at first glance it might seem surprising that the coping and attitude measures did not show more substantial SES differences. The one strong sign of this kind was the greater degree of defensive behavior reported by the working-class students in six of the eight sites, on the Stage I Social Attitudes Inventory.

The motivation patterns shown in the Occupational Values are more in keeping with the expected correlates of achievement. The greater middle-class liking for independence and managerial power, if that translates into active coping skills, should logically produce higher achievement than the lower class concern for security.

Perhaps the chief reason for the apparent incongruity, however, is that, given the great difference in entering aptitude, it might well take heroic differences in coping skill and highly motivated effort for working-class youth to equal the achievement of the upper-middle class youth. It may be noted that it is in precisely the one place where the aptitude difference was smallest, Sao Paulo, that the differences in achievement were also smallest.

The only way to test this kind of explanation is to measure the effects of entering-level coping skills, attitudes and motivation on post-year or post-school achievement, correcting for students' entering levels of aptitude and achievement as is currently being done in the Teaching-Learning Interaction Study (Peck, 1977).

Table 1

INTERCOUNTRY COMPARISONS: COUNTRY, AGE, CLASS, AND SEX DIFFERENCES - STAGE I

AVEN APTITUDE: *1* Tukeys HSD = N/A

ountry:	Brazil	Mexico	England	Italy	Yugoslavia	Chicago	Austin	Japan
nks: N/A ans: N/A								
ountry x ge								
ountry x ES	L < M 48 52	L < M 46 54	L < M 48 52	L < M 48 52	L < M 49 51	L < M 45 55	L < M 47 51	L < M 47 53
ountry x Sex	M > F 51 49	M > F 51 49	M < F 50 50	M < F 50 50	M < F 49 51	M > F 51 49	M < F 50 51	M < F 49 51
ge N/A					SES	UL < UM 47 53		
ge x SES					SES x Sex	LM > LF 47.5 47.0	MM < MF 52.0 53.0	
ge x Sex					Sex			

*Not Applicable

Reading Achievement: *3* Tukeys HSD = N/A*

Country:	Brazil	Mexico	England	Italy	Yugoslavia	Chicago	Austin	Japan
Ranks: N/A Means: N/A								
Country x Age								
Country x SES	L < M 48 52	L < M 46 54	L < M 47 53	L < M 48 52	L < M 48 52	L < M 47 53	L < M 46 54	L < M 46 54
Country x Sex	M > F 51 49	M > F 51 49	M < F 50 50	M < F 50 50	M > F 51 49	M > F 50 50	M < F 49 51	M < F 49 51
Age					SES	UL < UM 47 53		
Age x SES	10L < 10M 47 53	14L < 14M 47 53			SES x Sex			
Age x Sex	10M < 10F 50 50	14M > 14F 50 50			Sex			

*Not Applicable

Mathematics Achievement: *2* Tukeys HSD = N/A

Country:	Brazil	Mexico	England	Italy	Yugoslavia	Chicago	Austin	Japan
Ranks: N/A Means: N/A								
Country x Age								
Country x SES	L < M 49 51	L < M 45 55	L < M 47 53	L < M 48 52	L < M 48 52	L < M 48 52	L < M 46 54	L < M 47 53
Country x Sex								
Age N/A					SES	UL < UM 47 53		
Age x SES					SES x Sex			
Age x Sex	10M < 10F 49 51	14M > 14F 50 49			Sex			

*Not Applicable

Grade Point Average: *4* Tukeys HSD = N/A*

Country:	Brazil	Mexico	England	Italy	Yugoslavia	Chicago	Austin	Japan
Ranks: N/A Means: N/A								
Country x Age								
Country x SES	L < M 49 51	L < M 48 52	L < M 47 53	L < M 48 52	L < M 47 53	L < M 47 52	L < M 47 53	L < M 47 53
Country x Sex	M < F 49 51	M > F 50 50	M > F 51 49	M < F 49 50	M < F 49 51	M < F 49 51	M < F 48 52	M < F 49 51
Age					SES	UL < UM 48 52		
Age x SES					SES x Sex			
Age x Sex	10M < 10F 49 51	14M < 14F 49 50			Sex	M < F 49 51		

*Not Applicable

Table 2

INTERCOUNTRY COMPARISONS: COUNTRY, AGE, CLASS, AND SEX DIFFERENCES - STAGE III

Power: *1* Tukeys HSD = .210

Country:	Brazil	Mexico	England	Germany	Italy	Yugoslavia	Chicago	Austin	Japan
Ranks:	5	2	8	3	4	6	7	9	1
Means:	-.0	.0	-.0	.0	.0	-.0	-.0	-.1	.1
Country x Age	10>14 .0 -.0	10<14 .0 .0	10<14 -.0 -.0	10<14 .0 .0	10>14 .0 -.0	10<14 -.0 .0	10>14 -.0 -.0	10>14 -.1 -.1	10>14 .1 .0
Country x SES	L<M -.1 .1	L<M -.4 .4	L<M -.3 .2	L<M -.2 .3	L<M -.2 .2	L<M -.2 .2	L<M -.4 .4	L<M -.4 .2	L<M -.2 .3
Country x Sex	M<F -.0 .0	M>F .1 -.1	M<F -.1 .0	M>F .1 -.0	M>F .0 -.0	M>F .1 -.1	M<F -.1 .1	M<F -.2 -.0	M<F .1 .1

Age		SES	UL<UM -.3 .2
Age x SES		SES x Sex	
Age x Sex		Sex	

Mathematics Achievement: *2* Tukeys HSD = .206

Country:	Brazil	Mexico	England	Germany	Italy	Yugoslavia	Chicago	Austin	Japan
Ranks:	5	4	7	3	6	2		8	1
Means:	.0	.0	-.0	.0	.0	.0		-.1	.1
Country x Age	10<14 .0 .0	10<14 -.0 .0	10>14 .0 -.0	10>14 .0 -.0	10=14 .0 .0	10>14 .0 .0		10>14 -.1 -.1	10>14 .1 -.0
Country x SES	L<M -.1 .1	L<M -.3 .3	L<M -.3 .3	L<M -.1 .1	L<M -.2 .2	L<M -.2 .2		L<M -.3 .1	L<M -.4 .5
Country x Sex	M<F -.1 .1	M>F .2 -.2	M>F -.0 -.0	M>F .2 -.2	M<F -.0 .0	M>F .1 -.1		M>F -.1 -.1	M>F .1 -.0

Age		SES	UL<UM -.2 .2
Age x SES		SES x Sex	
Age x Sex		Sex	M>F .1 -.1

Reading Achievement: *3* Tukeys HSD = .192

Country:	Brazil	Mexico	England	Germany	Italy	Yugoslavia	Chicago	Austin	Japan
Ranks:	3	6	8	4	2	5		7	1
Means:	-.0	-.0	-.0	-.0	-.0	-.0		-.0	.1
Country x Age	10>14 .0 -.0	10<14 -.0 .0	10>14 -.0 -.1	10<14 -.0 .0	10<14 -.0 .0	10>14 .0 -.0		10>14 -.0 -.1	10>14 .1 .1
Country x SES	L<M -.4 .4	L<M -.4 .4	L<M -.4 .3	L<M -.3 .3	L<M -.4 .4	L<M -.3 .2		L<M -.4 .3	L<M -.4 .5
Country x Sex	M>F .0 -.0	M>F .3 -.3	M<F -.1 .0	M<F -.0 .0	M>F .0 -.0	M>F .0 -.1		M<F -.1 .1	M<F -.0 .2

Age			SES	UL<UM -.4 .4
Age x SES	10L<10M -.3 .3	14L<14M -.4 .4	SES x Sex	
Age x Sex			Sex	

Grade Point Average: *4* Tukeys HSD = .206

Country:	Brazil	Mexico	England	Germany	Italy	Yugoslavia	Chicago	Austin	Japan
Ranks:	6	7	4	8	5	3	2	9	1
Means:	-.0	-.0	.0	-.0	.0	.0	.0	-.1	.1
Country x Age	10<14 -.0 .0	10<14 -.0 -.0	10>14 .0 .0	10>14 -.0 -.0	10<14 -.0 .0	10>14 .1 -.0	10>14 .1 .0	10>14 -.0 -.1	10>14 .2 .0
Country x SES	L>M .1 -.1	L<M -.4 .4	L<M -.2 .3	L<M -.1 .0	L<M -.3 .3	L<M -.3 .4	L<M -.0 .1	L<M -.4 .2	L<M -.3 .5
Country x Sex	M<F -.1 .1	M<F -.1 .0	M<F -.1 .1	M<F -.1 .1	M<F -.0 .0	M<F .0 .0	M<F -.1 .2	M<F -.2 .1	M<F .1 .1

Age		SES	UL<UM -.2 .2
Age x SES		SES x Sex	
Age x Sex		Sex	M<F -.1 .1

ETHNIC DIFFERENCES IN THE 1965 AUSTIN SAMPLE
CONCLUSIONS AND IMPLICATIONS

THE ANGLO PATTERN: COMBINED CORRELATIONAL AND ANOVA FINDINGS

At ten years, a consistent pattern of rather substantial correlation was observable among the Raven Aptitude test, the Mathematics Achievement test, the Reading Achievement test, Grade Point Average and Peer Ratings (BRS). The Raven, an estimate of "I.Q." or intellectual aptitude, did "predict" performance as measured by tests, by teachers and by classmates. At fourteen, the correlations among the Raven, the Achievement tests and teacher grades were substantially higher at a number of points. Peer ratings on Task Achievement still agreed with teacher grades, agreed more weakly with the achievement tests, but no longer correlated with the Raven score.

At both the elementary and high school levels, both students and teachers had a fairly clear, consistent and objectively accurate picture of the performance levels of different children. This consensus was scarcely perfect. The highest correlation was .62 and the correlations of GPA and Raven with Mathematics Achievement were as low as .21 and .28. The cross-validation of the different assessments was stronger for the Anglos, though, than for the Mexican Americans and far stronger than for the Black children.

It seems no accident that the Anglos exceeded the Mexican Americans and far exceeded the Blacks in both the Aptitude and Achievement tests. The Anglos even excelled on GPA, despite the fact that these ethnic populations were largely segregated from one another in the schools where they were located in 1965, and also despite the fact that their GPA's were not as much higher than the other ethnic groups' as their Raven and Achievement test scores. The teachers of these Anglo children tended to appraise them more accurately, even if somewhat more strictly, using much the same criteria as the children, themselves, used in judging each other. In such an atmosphere of relative agreement on the criteria of performance, reasonable accuracy in discriminating good from poor performers, and reasonable fairness in grading, it would be natural for these Anglo children to have better morale, to have a clearer picture of what to expect, and thus to learn more efficiently than the Black or Mexican American children.

Whatever the effect of the differences in "Aptitude" (and the Raven test, like any other "Aptitude" test is a performance measure, strongly influenced by previous intellectual stimulation, previous learning, motivation, and freedom from excessive test anxiety), the superiority of the Anglos' performance must have been appreciably enhanced by the greater degree of perceptiveness and discriminating judgment demonstrated by their teachers.

These working-class Anglo children, even so, did much less well on the Aptitude and Achievement tests than their upper-middle class Anglo counterparts. Their relative deficiency was about .4 SD's at ten years and .7 SD's at fourteen years on the Raven; almost .9 SD's on Math and Reading Achievement at both ages. Even though the children of different SES levels were mostly in different schools at the age of ten, elementary teachers gave higher grades to the upper-middle class children, by about .6 SD's. In high school, the GPA difference was almost as large. (Peck, et al.,Vol.II, 1972a) Since the correlational consensus among tests, teacher grades and peer ratings was just about the same for the upper-middle and working-class children, the evidence suggests that the social status difference in Anglo grades was a reflection of actual differences in academic performance.

Compared to the total school population, the performance of these children of the skilled working class was quite mediocre, on the average. There was a wide range, still, within the group and school performance was meaningfully related to differences in values, coping ability and self-perception.

Curiously, the Anglo children, as a group, were much less realistic in their less-consciously projected self-portrayals (Reality/Fantasy score) than the other ethnic groups. Conversely, the frank self-rating of achievement elicited by the Behavior Rating scales found them more conservative than the Blacks or Mexican Americans when they were consciously describing their own academic performance. Since the Reality/Fantasy Discrepancy score measured the discrepancy between actual performance and the projective self-description, it probably is a better estimate of realism in self-appraisal. By this standard, the Anglo working-class children were more unrealistically self-satisfied with their school performance than either their middle-class counterparts or the Black or Mexican American children. Nonetheless, those Anglo, working-class children who were better readers tended to rate themselves as better achievers in school; and, considering the substantial correlation of GPA with Reality/Fantasy, they were more realistic in assessing their own performance.

The Anglos scored highest of the three ethnic groups for their interest in Independence; but they also scored highest in their concern for job Security and pleasant Associates. They gave relatively low weight to the chance to be Creative or the chance to earn high Prestige. Their Extrinsic career values score was highest of the three groups. In short, they wanted safe, pleasant jobs with a chance to do things their own way; but they showed little ambition to get ahead in life and not much intrinsic interest in any line of work for its own sake.

Within the Anglo group, ten-year-olds who stood closest to the group value-profile in seeking Security, Independence, and pleasant Associates tended to perform better on the Reading Achievement measure. The better readers at ten also tended to downgrade Esthetic careers or Following their Fathers' occupations.

The good readers did not, however, show any more ambition for occupational or educational mobility than the poor readers (unlike the other ethnic groups). At fourteen there was a modest correlation of Educational Aspiration with Reading Achievement but no more than in the other ethnic groups. The Anglos actually aspired to a somewhat more lower occupational level than the Blacks; a little higher than the Mexican Americans; but, compared with their fathers' occupational levels, they were least ambitious of the three ethnic groups. Their Educational Aspirations were on a par with the Blacks, a little higher than the Mexican Americans.

Where ethnic differences occurred in the Social Attitudes Inventory, the Anglos stood midway between the Blacks (high) and the Mexican Americans (low) on Passive Coping; and lowest of all on Passive Defensive behavior. These standings appear to have some real meaning, since within the Anglo group, Passive Coping was positively correlated with Reading Achievement at ten years while, at fourteen, Active Coping correlated positively and Active Defensiveness negatively, with Reading. Good Anglo readers at ten seemed to be copers, but passive copers. By fourteen, good reading was associated with Active Coping and negatively associated with Actively Defensive behavior.

Ten-year-olds who read well tended to express positive feelings about Task Achievement on the Sentence Completion. Although they tended to express slightly less positive overt attitudes toward authority relationships, they actually dealt better with authority than did the poor readers. They also tended to get along better with their agemates, reacting in an emotionally neutral rather than disturbed or negative way. Averaging across all five behavior areas, they tended to take a more confronting stance toward all kinds of problems and to cope more effectively with them.

When the three ethnic groups were compared for Attitude and Coping skills demonstrated on the Sentence Completion, the most notable finding was the lack of significant ethnic differences. Contrary to the large differences in academic achievement, despite the fact that this instrument requires verbally stated responses to verbally posed problems, the Anglo children did not exceed the Black or Mexican American children except in a few instances. Since this instrument posed a rapid succession of perfectly real problems and the answers were scored for adequacy of solution, these findings would seem to indicate that the Black and Mexican American children are not so inferior to the Anglos in their ability to recognize or to resolve real-life problems as they demonstrably are in the performance of academic tasks in school.

Indeed, the only variable on which the Anglos stood highest was their Attitude toward Interpersonal Relations. They stood lowest of the three groups in their expressed Attitude toward Task Achievement. As in so much of the other data in the study, these working-class Anglo children showed relatively more concern for pleasant living than for achievement.

Within the Anglo group, independent coping ability did tend to be associated with better objective achievement, at both age levels. At fourteen, however, while effective coping skills with relation to tasks and authority were positively related to achievement, it was also the more anxious children who were the better readers.

The Story Completion instrument was systematically related to Reading Achievement at age ten. Good readers had higher scores on the various coping skills in dealing with academic task achievement, with problems of agemate relationships, with separation-anxiety and with maternal authority. All of the Total scores on the instrument were positively and significantly correlated with Reading Achievement at ten years of age.

At fourteen, the number of significant correlations was considerably smaller and they occurred at different places. At this older age, good readers tended to be children who dealt independently with their fathers, handled aggressive attacks constructively, and dealt effectively with recreational problems. They were not necessarily the children who handled agemate relationships confidently or effectively. This is not at all the same pattern as that of the good readers at ten, who were primarily good at getting along with mother, positively oriented toward academic tasks, good at interpersonal relations and relatively unanxious.

The value system of the teachers of these children can be inferred from the correlations between GPA and the measures of values and coping ability, in comparison with the correlations of the same variables with objective achievement. As has been noted above, teacher grades were quite positively correlated with the objective measures of achievement, ranging from .21 with Mathematics at age ten, to .61 with Reading at age ten. There was actually a higher positive correlation between teacher grades and peer ratings on Task Achievement than between either of these measures and the achievement test scores. The grades elementary teacher[illegible] gave bore little relationship to objective Mathematics Achievement b[illegible] a much stronger relationship to the children's Reading Achievement [illegible]s. There was practically no difference at the Junior High School [illegible]vel in the correlations of Mathematics and Reading with GPA. Looking at the total pattern of relationships, it appears that the Anglo teachers of these Anglo children graded somewhat on the degree of reading and mathematical skills the children demonstrated, but a good deal more on other, unspecified attributes, probably having to do with their work habits, their attitudes of respect for the teacher, and their ability to conduct themselves positively but quietly with classmates. The children, themselves, used many of the same yardsticks as their teachers in judging each other. The children did appear to recognize objective skill in handling subject matter but they, too, gave a greater weight to other criteria which included the ability to cope positively and effectively with interpersonal relationships, with authority and with anxiety-arousing situations. The particular areas of living that were crucially important to the children changed considerably from age ten to age fourteen. Coping with paternal authority became more important than coping with maternal authority, with increasing age. Coping with recreational problems assumed new significance, and the ability to handle interpersonal aggression effectively took on greater importance by fourteen.

Elementary teachers actually showed a slightly negative reaction, through their grading, to Anglo children who coped well on their own initiative, except where the children were dealing effectively with figures of authority such as the teachers, themselves. High school teachers tended to look favorably, in their grading, at Anglo children who got along well with their classmates but who were not too strongly attracted to them, and who showed generally positive attitudes toward authority in school work. At the high school level, it was the pupils who worried more and who handled their anxiety less effectively who both read better and got higher grades from teachers. Since the correlations of teacher grades with the Story Completion scores were closely similar to the correlations of those scores with objective achievement, it can be said that teachers valued approximately the same coping abilities and attitudes in children which were conducive to effective achievement as measured by the standardized Reading test.

At fourteen, the Junior High School teachers favored children who got along well with maternal authorities (like most of the teachers, themselves?), who were positively task oriented, who got along well with agemates, and who handled aggression in a nonhostile, constructive manner. In short, the grades teachers gave these high school students reflected how well socialized the students were, just about as much as their grades reflected mastery of academic skills.

The one discordant note in the correlates of teacher grades was the discrepancy between the positive value of a child's concern for independence in producing good objective achievement, and the zero or negative weight given to this quality by teachers, in assigning GPA. The discrepancy was of small magnitude but it was a systematic phenomenon at both the elementary and the Junior High School levels, disfavoring independent children.

Overall, while these working-class Anglo children did not do as well in school as their middle-class counterparts, they were dealing with teachers who showed a reasonably good degree of discriminating perceptiveness in recognizing the differential performance of different children, and who assigned grades accordingly. The children and their teachers also shared more values in common, and to a greater degree, than was true of either of the other ethnic groups in their relationships with their teachers. The advantage the Anglo children possessed in this respect appeared large enough to account for the size of the difference when their performance on either Aptitude or Achievement tests was compared with the performance of Mexican American and Black children.

THE BLACK PATTERN: COMBINED CORRELATIONAL AND ANOVA FINDINGS

At the elementary school level, among the Black children, there was no relationship of Raven score to either Mathematics Achievement or GPA although there was a modest correlation with Reading Achievement. Very unlike the situation in the other two ethnic groups, the grades which teachers gave to these Black children bore no relationship to the children's Aptitude scores. Indeed, the children themselves were far more accurate judges of each other's performance than were the teachers. The BRS ratings on Task Achievement correlated quite substantially (.38, .44) with both the Mathematics and Reading Achievement tests.

These Black children, even though they did not suffer the extreme disadvantages of the children from the lowest socioeconomic levels, nonetheless scored lower in both the Raven and the Achievement tests, .7 to .8 SD's lower than the Anglos and .3 to .4 SD's lower than the Mexican Americans. Such data might suggest the conventional interpretation that they possessed a lower average level of intellectual aptitude and therefore performed less well on achievement tests. Unfortunately for this hypothesis, the Raven correlated not at all with Mathematics Achievement and only .28 with Reading Achievement. Thus, there was not much more than random relationship between performance on the presumed aptitude measure and performance on the achievement tests.

An even more telling fact is the complete absence of any significant relationship between Aptitude and teacher grades. The Black teachers of these Black children tended to give them grades almost equal to the grade averages earned by Mexican American children from their teachers. The discrepancy among the ethnic groups on GPA was far smaller than the discrepancy on the measures of Aptitude and Achievement. The Black teachers seemed to have graded leniently but with practically no relationship to the demonstrated academic competence of different Black children. In short, the elementary teachers had no clear, accurate picture whatever of the differences in performance of different children, although the children, themselves, made these distinctions quite accurately.

At the Junior High School level the judgment of the teachers was somewhat more in line with the tested performance ability of the children, although at a lower level than was true with either of the other ethnic groups. Achievement scores correlated substantially with the Raven score. The Raven correlated modestly (.23) with GPA assigned by teachers though, again, to a lesser degree than was true for either of the other ethnic groups. On the other hand, the BRS peer ratings no longer correlated with the objective measures of achievement at the Junior High School level although they did correlate modestly with GPA (again, less than was true in the other ethnic groups). By fourteen, these Black children apparently had learned to evaluate one another by criteria that were considerably different from the criteria implicit in Standardized Aptitude or Achievement tests. Even at ten, their peer evaluations of each other's ability to cope with Anxiety or to be

Self-Assertive operated along different scales of judgment than their teachers used. Operationally, they "think differently" or judge differently, than teachers or than their Mexican American or Anglo agemates. Speaking directly from the empirical evidence in Tables 2 and 4, it appears that the Black children demonstrate a culturally distinct system of ideas and values for judging one another -- a system which differs substantially from the value-yardsticks that their own Black teachers held and which also differs from the yardsticks used by Mexican American or Anglo children. In such circumstances, frequent misunderstandings or failure to communicate accurately seem very likely to happen between Black children and their teachers. They use the same words but not with the same meanings, or not with the same implicit value loadings. It is as if, in trying to see eye-to-eye, they frequently look to left or right of each other and do not establish eye-to-eye contact -- that is, mind-to-mind contact.

Further evidence pointing in the same direction is summarized in Tables 5 and 6. There were strong, systematic discrepancies between the relationships of the achievement tests to child values and coping skills, on the one hand, and the pattern of correlations of teacher-assigned GPA with values and coping skills, on the other hand. In fact, at the elementary school level, children's self-ratings on Task Achievement skill on the BRS were correlated somewhat more highly with objectively measured Reading Achievement than were teacher grades. At the same time, the Reality/Fantasy Discrepancy score barely approached significant correlation with Reading Achievement at this age level. There may have been some wishful thinking which reduced this correlation, reflected in the fact that these Black ten-year-olds rated themselves higher than did either of the other two ethnic groups on Academic and Nonacademic Task Achievement, on the ability to handle Interpersonal Relations, and on the ability to handle Aggression. Whether it should be more properly called wishful thinking or optimism, these high self-ratings did not project a picture of depressed confidence or morale.

By fourteen, neither self-rating nor Peer BRS rating on Task Achievement correlated with Reading Achievement while the teacher-assigned GPA did correlate modestly with Reading, as did the Raven Aptitude score. Thus, at this age level, the teachers appeared to have been somewhat more realistic than the children, themselves, although their grades were much less strongly correlated with the academic performance measures than in the case of the Anglo or Mexican American children at the Junior High School level.

On the Occupational Values instrument the Black children as a whole stood highest of the three ethnic groups in their concern for a chance to be Creative and to win high Prestige. They were intermediate between the Anglo and Mexican American groups in their concern for Independence. They gave relatively less weight than the other two groups to job Security or pleasant Associates at work.

At both ages, there were meaningful patterns of correlation between certain career values and Reading Achievement. At ten, the desire for Prestige and Security were positively related to achievement while concern for diverting Variety was negatively related. At fourteen, the good readers were more Altruistic, more interested in Self-Satisfaction and Creativity, and showed less than average interest in making money or Following their Fathers' occupations. At both age levels, the value patterns associated with Reading Achievement were considerably different, at most points, from the values associated with achievement in the other two ethnic groups.

At neither age level did the teachers assign grades in a way that corresponded to the way the children's expressed values correlated with objectively measured achievement. The absence of correlations between teacher perceptions and child-reported values, contrasted with the fact that a number of these values were related to actual performance, strongly suggests that the teachers did not understand the Black children and that they failed to see or to appreciate the kinds of motivations which were actually operating to produce good academic performance, at least as represented by the Reading Achievement tests. Exactly the same can be said of these striking contrasts in correlation between Reading Achievement and the children's aspirations, on the one hand, and between these aspirations and teacher-assigned GPA, on the other hand. At both age levels, children with higher occupational and educational aspirations scored better on the Reading Achievement test. The teachers, however, did not assign grades in any way that related to the aspiration levels of the children. This was in sharp contrast to the way the teachers of Anglo and Mexican American children gave higher grades to those children who expressed higher aspirations. Again, it is almost as though the Black teachers of these Black children were blind to the real differences among the children in a degree of ambition and aspiration, even where educational aspiration was concerned.

The teachers could scarcely have used the excuse that the children were "unambitious," for on all measures of aspiration the Black children scored highest of the three ethnic groups. They aspired to the highest level of occupational status, relative to the Anglo and Mexican American children; they stated a somewhat higher expectation; they equaled the Anglo group in their aspiration for amount of education; and they showed the greatest degree of ambition to rise above their fathers' levels of occupational status. It might be argued that their ambitions were unrealistically high, for the mean level of education they aspired to, as a group, included at least some college. The occupational level they expected to reach was just at the lower-middle class level, however, a substantial but not unreachable distance above their fathers' present occupational levels in the skilled-working class. While their Educational Aspirations probably were unrealistic, insofar as their academic performance level was so much below the average of the total American school population, their occupational ambitions did not seem to be unreachably high, even if the whole group could not be expected to move up quite as far as their wishes would take them. In any case, the more ambitious children were apt to be those who were already doing better in school, as measured by objective achievement, although not as measured by teacher grades.

Taking both age levels together, the Black children outscored both of the other ethnic groups on Passive Coping in the Social Attitudes Inventory. They were intermediate between the high Mexican Americans and the low Anglos on Passive Defensive behavior. Passive Coping was almost significantly related to Reading Achievement at ten but Active Coping was even more correlated. At fourteen, good readers were those who scored less than average on Active Defensive behavior.

The grades elementary teachers assigned were somewhat related to the Active Coping score at age ten. At fourteen, however, the grades teachers assigned bore no relationship to the scores on this self-descriptive measure of coping style.

While the ten-year-olds' responses to the Sentence Completion instrument showed very few correlations with Reading Achievement, these were in the logically expectable direction. Stance and Coping Effectiveness on Task Achievement items were positively correlated with actual achievement. Their teachers, however, tended to give higher grades to children who showed poorer Coping Effectiveness in agemate relationships and who expressed negative emotion rather than responding neutrally to agemate problems. It is almost as though the teachers were rewarding Black children who did not form comfortable relationships with peers. Furthermore, the teachers gave better grades to the children who were more anxious, more easily upset and less able to cope with anxiety-arousing situations. It may well have been true that these more anxious children tended to try to please their teachers; a slight bit of support for this interpretation appeared in the negative correlation of Anxiety Coping with Reading Achievement. Nonetheless, this is scarcely an argument for systematically favoring worried children and simultaneously downgrading more confident, nonanxious children.

At fourteen years, the contradictions between teacher grades and the objective Reading Achievement score as criteria of coping ability grew even more marked. While fourteen-year-old Black children who got along well with agemates tended to do better on their Reading test, they tended to get poorer grades from teachers. Children who displayed an ability to cope actively with Authority did better on the Reading test but they did not get better grades from teachers. Instead, teachers tended to give better grades to children who, on the Sentence Completion, expressed a good deal of negative Affect toward Authority. The Anxiety scores, whether for coping style or affect, bore no relationship to Reading Achievement, yet teachers tended to give better grades to children who were more anxious than average and who showed a good deal of negative feeling about anxiety-arousing situations. Teacher grades were unrelated to coping scores in the area of Aggression although these scores were positively correlated with actual Reading Achievement.

Overall, the good readers at fourteen tended to take a more confronting stance toward various problems and coped more effectively with them. Teachers, however, tended to give lower than average grades to children with above average Coping Effectiveness scores, diametrically opposite to the relationship of Coping Effectiveness with actual achievement. Furthermore, teachers gave higher grades to children who expressed more negative affect than average and who were less able than average to react to problems in an emotionally neutral, practical fashion.

Thus, there were repeated contradictions between what teachers valued, as reflected in the grades they assigned, and the qualities that actually were related to good achievement. No such systematic contradictions appeared in either the Anglo or the Mexican American groups.

The unique disadvantage under which these Black children labored seems all the more unfair to them when it is observed that their mean scores on the coping measures in the Sentence Completion did not differ significantly from those of the Anglo or Mexican American children except in a few instances; and even in these few instances they were rarely the least effective of the three groups. On the whole, they were just as capable of acknowledging and dealing with problems in a constructive way, with positive feelings, as the Anglo children or the Mexican American children. Indeed, they had the least disadvantageous Reality/Fantasy Discrepancy score of the three groups. Like the working class children in the other two ethnic samples, they did show a tendency to be a little more optimistic in their self-portrayals of achievement than their actual achievement warranted, but they were far less prone to this kind of wishful thinking than the Anglos, and a little less prone than the Mexican Americans.

Their Self-Image scores showed that they felt just as well regarded by their parents as did the children in the Anglo or Mexican American groups. They had the most positive scores of the three ethnic samples on their reported Interaction with Parents, and their Interaction with Father, in particular.

Thus, in the Sentence Completion data, which bore a moderate but consistent relationship to achivement at fourteen, in particular, the Black children looked as capable of dealing with life in the different areas of behavior as the Anglo or Mexican American children, and were even slightly happier with their family relationships.

The Story Completion instrument, possibly because it requires much more extended verbalization, did show the Black children scoring significantly lower than the Anglo or Mexican American children in Coping Effectiveness in all but one story. Furthermore, they scored lower on both the coping style measures and the affect measures. Since there was a systematic pattern of substantial correlations between these coping scores and Reading Achievement at both age levels, their lower scores, relative to the other two ethnic groups, may well reflect a somewhat lower degree of Coping Effectiveness, particularly in complex situations such as those portrayed in the story problems. The degree of their functional inferiority on these measures, however, was nowhere near as large as their inferiority on the standardized measures of Aptitude or Achievement.

In the Story Completion findings, teacher grades did not go opposite to the observed correlates of Reading Achievement but there was a notable absence of correlations on all but two stories, between GPA and coping scores. By contrast, there was a consistent array of positive correlations of coping scores with Reading Achievement, at both age levels. This pattern was entirely consistent with the pattern observed in all of the other data. The Black teachers of these Black children seemed to have had a very unclear, undiscriminating view of the children. The grades they assigned bore little or no relationship to the behavioral qualities of coping skill and affect which were actually significantly related to objectively measured performance, using the Reading Achievement test as a criterion. This was quite unlike the situation with the Anglo or Mexican American students and their teachers.

In their actual performance, as variously measured, the Black children did not equal the achievement or the coping skills of the Anglo or Mexican American groups. They were by far the lowest in their ability to handle the standardized tests of Aptitude and Achievement. On one of the two main measures of coping skill, the Story Completion (and this was the most positively correlated with actual achievement), they showed the lowest scores of the three ethnic groups on Engagement, Initiation, Implementation, Affect Tone, and Persistence. They also consistently showed relatively the lowest scores for Coping Effectiveness on all stories. They did far less well on these measures than the middle-class Anglos. They did better on the Sentence Completion, largely equal to either of the other ethnic groups; but their scores on that instrument were not as related to actual achievement, particularly at ten years, as was true of the Story Completion scores. The relative inferiority of coping behavior they displayed was not nearly as large as the inferiority of their scores on academic measures, however.

Their own description of their coping style showed them more prone to resort to Passive Coping behavior than either the Anglo or Mexican American children, and quite close to the Mexican Americans in exhibiting Passive Defensive rather than Actively Defensive behavior. Given the history of the Southern Black, this resort to passive methods of dealing with life is long-noted and entirely understandable. It may help to account for their somewhat lower scores on the Story Completion dimensions, all of which give positive weight to an active, self-initiated style of coping behavior. The fact that their academic performance suffers much more than their performance in dealing with other kinds of practical problems in life seems almost certain to be influenced, at least in this particular sample, by the peculiar disadvantage which these children suffer in the eyes of their teachers. This sample was drawn just as the century-long pattern of racial segregation in the public schools of Austin, Texas was coming to an end. The circumstances in which these children experienced education no longer exist to anything like the same degree. Over the past few years, the faculties at both the elementary and high school levels have been thoroughly desegregated. At the time this research sample was drawn, however, these Black children had spent all of their lives in almost completely Black schools, with almost totally Black faculties.

All of the data from this study display a moderate but entirely consistent pattern which could only work to the detriment of these Black children in their academic learning. Some kind of massive perceptual barrier, or even distortion, appears to have separated the teachers from the children. No matter what the children actually achieved academically, there was not much assurance at all that this would win them good grades, particularly at the elementary school level. The situation was a little better at the Junior High School level but, even there, the grades teachers gave to Black children were far less related to their performance than was true for Anglo students or for Mexican American students in other schools. Such a consistent lack of congruence between actual performance and teacher evaluations could hardly fail to have a rather strongly discouraging impact on these Black children. It was not the children's perceptions of reality that needed to be improved. It was their teachers' perceptual accuracy, in actually seeing and acknowledging which Black children did and did not perform, that needed to be greatly improved.

More than just perceptual distortions were operating, however. The teachers who were instructing the children at that time had some emotionally loaded ways of evaluating child behavior which could only be detrimental to academic learning and to the learning of effective coping skills. Changing these values and preferences of the teachers would be far from easy. Nonetheless, it seems even more important to ameliorate these kinds of attitudes than simply to train teachers to observe achievement behavior more accurately. Undoubtedly, many of the Black teachers whose children were involved in the study had far more inadequate educations, themselves, than had ever been recognized or honestly presented to them. Moreover, as has been true of many people who have fought their way up out of very disadvantaged circumstances, many Black teachers have been observed to be almost more out of sympathy and more emotionally removed from Black pupils than is true of the average Anglo teacher. Yet, the alienation of the Black teachers from their Black pupils in the present sample, is all the more striking, and rationally insupportable, because these were not children from impoverished, severely disadvantaged homes but from economically secure families at the skilled-worker level.

All this evidence argues forcefully that no remedy short of complete desegregation of teaching faculties, at the least, could possibly give these Black children a fair chance to develop adequate academic skills. At the same time, this kind of faculty desegregation simply spreads that fraction of the Black teachers who have inadequate perceptiveness, or deleterious expectations about pupil behavior, over the entire school system. If, as seems likely, the systematically repressive and unperceptive behavior of these Black teachers is the product of their own segregated, inadequate education, deficient in both cognitive and emotional respects, they could not help but visit the unfortunate consequences on their future pupils, of whatever color, as long as they continue in teaching.

Clearly, there are many Black teachers whom this description does not fit at all. There are additional Black teachers who are already working their way out of the unwitting blindness or rigidity which had been thrust upon them. Nonetheless, the pattern of unperceptiveness and alienation which runs throughout the data in the present study could not possibly appear so consistently unless a large fraction of the Black teachers involved had deficiencies of knowledge or attitude which only patient, supportive, skillful and long continued in-service training could hope to ameliorate. If all of these teachers are to be employed for many years to come, in this and other communities, it seems vitally important to recognize their problems and to provide truly responsible re-training, over long periods of time, if the quality of education in the entire community is not to suffer.

THE MEXICAN AMERICAN PATTERN: COMBINED CORRELATIONAL AND ANOVA FINDINGS

Taking both age groups together, the Mexican American students were intermediate between the Anglo and Black students in their performance on the Raven, on the Mathematics and Reading Achievement tests, and in Grade Point Average. This put them toward the bottom of the total school population in the city but not as far down as the Black students.

Their teachers were reasonably objective and fair in their assessment of these children. Such a conclusion is moderately supported by the data in Table 3 that show significant correlations of GPA with both the Raven Aptitude measure and the Achievement test scores at both age levels (except for Math at age ten). The correlations were substantially lower, than in the case of the Anglo students, although somewhat higher than the correlations of GPA with Aptitude and Achievement among the Black students.

The Peer ratings on the BRS correlated systematically with Aptitude and Achievement at age ten. The Mexican American children at this age were somewhat more realistic in assessing one another than either of the other two ethnic groups. There were few significant differences among the groups in the mean scores on the BRS ratings. The Mexican Americans scored a little higher than the other groups for their ability to cope with anxiety and a little lower for their self-assertiveness. Peer ratings on ability to cope with Authority, Interpersonal Relations, Anxiety and Aggression all correlated more strongly with Reading Achievement than was the case with the other two ethnic groups. The Anglos showed a similar pattern but not nearly as strongly, while the Blacks were least like the Mexican Americans in this respect. In all, the saliency of interpersonal relationships as a dominant theme in Mexican American culture would seem to be supported by these findings among the ten-year-olds.

At fourteen, significant correlations of these BRS scales with Reading Achievement disappeared; but these same characteristics turned out to be correlated with Mathematics Achievement. At the high school level, uniquely among the Mexican Americans, Mathematics appears to have become a more important reflection of application and general coping ability than Reading. At this level, Mathematics Achievement also correlated significantly with GPA, a little more highly than Reading, whereas at the elementary school level Mathematics Achievement had not correlated significantly with GPA. (This pattern of correlates of GPA was quite similar to the age-shift found among the Anglo students.)

The self-ratings by these children on the BRS put them very close to the Anglo children on most scales. They were relatively lowest of the three ethnic groups in their self-ratings for Nonacademic Task Achievement and they tied for low with the Anglos on ability to cope with Aggression. They were not highest on any of the scales. They appear to have been rather modest and realistic in appraising themselves. Such an interpretation is further supported by their score on the Reality/Fantasy Discrepancy measure. They leaned just a little more than the Blacks toward slight over-optimism in appraising their own achievement skills, but they were quite close to the midpoint on the scale which represents neither over-estimation or under-estimation of performance.

The Mexican American children who performed well on the Reading test had a distinctive profile of values. They stressed the desire to help other people and to have good relations with their fellow workers. They wanted different jobs than their fathers and, by fourteen, they became very practical in their aims. Whereas, at ten, they valued Intellectual Stimulation, at fourteen this actually became a negative correlate of Reading skill; so did Creativity and Variety as career values. By fourteen, the children who read well wanted success and security, not entertainment or intellectual challenge. They appeared to be working hard at school in order to equip themselves to succeed in their adult careers. Compared with the other ethnic groups, they scored lowest in their concern for Independence or Prestige. They were intermediate in their concern for Creativity, Security and pleasant Associates. Here, too, the data suggest that good group relationships have somewhat more importance to the Mexican Americans than individual achievement.

Their Occupational and Educational Aspirations were somewhat more modest than the Aspirations of either the Anglo or the Black children, although they did hope to move a little higher above the level of their fathers' occupational status than was true of the Anglo children. Nevertheless, within the Mexican American group, Aspiration level was positively related to Reading Achievement, particularly at fourteen. At this high school level, Occupational Expectation predicted reading skill even better than did the Raven score or GPA. In this group, at fourteen, good reading clearly marked the more ambitious young people.

On the Social Attitudes Inventory the Mexican Americans actually scored lowest of the three ethnic groups on Passive Coping, but highest on Passive Defensive behavior. The good readers at ten years of age described themselves as either passive or active copers and as not reacting defensively in either an active or passive manner. At fourteen, good readers described themselves as coping in a passive manner and restraining themselves from actively defensive behavior.

The importance of good interpersonal relations with agemates was confirmed by the Sentence Completion data at age ten, for the coping scores on both the Interpersonal Relations and Authority items correlated systematically with Reading Achievement, as did the ability to cope with Anxiety. Overall, the ten-year-old Mexican Americans used the Stage I Sentence Completion to describe themselves in ways that related substantially to their reading performance (more than the Anglos and far more than the Blacks). By fourteen, though, children in this ethnic group gave even less valid self-portray[illegible]n this instrument than did the Blacks or the Anglos.

Comparing the three ethnic groups for their mean scores, these children stood highest in their Attitude toward Interpersonal Relationships, their readiness to Engage actively with people in Authority, their ability to cope with Authority problems, their tendency to do this in an affectively Neutral way, and in their ability to Engage actively with Anxiety-arousing situations. They scored highest, overall, across the five areas of behavior, for their readiness to Engage in active efforts to deal with problems.

In the Story Completion data, the good readers at ten were those who stressed good interpersonal relations and were able to cope with separation-anxiety. At fourteen, these considerations still carried weight and, in addition, strong weight was given to the ability to cope with interpersonal aggression and with maternal authority.

The Mexican Americans had the highest total Initiation score of the three ethnic groups but otherwise they were intermediate between the other two groups in both coping style and Coping Effectiveness. They tended to have lower scores than the Anglos but higher scores than the Blacks.

The teachers of the Mexican American children shared more values in common with them than was true of the Black teachers of the Black children, though their mental "yardsticks" were not as similar to those of the children as was true of the teachers of the Anglo children. At the elementary school level, the teachers valued some of the same qualities as the children: Altruism, Intellectual Stimulation and the desire for Security. The teachers tended to downgrade, however, children who wanted to be Independent, even though this child value correlated with Reading Achievement, objectively measured. Teachers gave higher grades to children who aspired to more education, though not to children who were ambitious for occupational mobility. These elementary teachers gave better grades to children who were Passive Copers, poorer grades to children who behaved in an Actively Defensive manner. Teachers' grades were also related to the coping and affect scores on a substantial number of the incomplete stories, especially those dealing with Task Achievement, Anxiety, Interpersonal Relations, and Maternal Authority. Thus, elementary teachers did grade these Mexican American children positively when they displayed initiative, self-reliance, persistence and positive feelings, not just at teacher-assigned tasks but when they were dealing with classmates and with anxiety-arousing situations.

At the Junior High School level, teachers gave better grades to Mexican American children who valued Altruism and Self-Satisfaction and who rejected artistical and musical careers. These teachers seemed to be far more aware than elementary teachers of the degrees of ambition possessed by different children. They gave substantially higher grades to those who wanted to go further in school and who wanted to climb the occupational ladder; and these were the same children who performed better on the Reading Achievement test. The teachers did not discriminate between active and passive copers, in their grading, but they definitely downgraded teenagers who displayed actively defensive behavior. Such teenagers also did less well on the achievement test.

Since the fourteen-year-old Mexican Americans did not appear to give a valid picture of their coping behavior on the Sentence Completion instrument, this probably explains why teacher grades bore almost no relationship to scores on that instrument.

In the Story Completion data, teachers did give higher grades to children who coped well with disagreements or with open aggression among agemates. They also tended slightly to favor children who coped effectively with maternal discipline. These relationships moderately resembled those between Reading Achievement and the coping scores on these same stories.

Teacher grades were positively correlated with the Reality/Fantasy Discrepancy score, though to a lesser degree than was true of the Anglo children.

The BRS data indicate that the children definitely did see life as all of apiece. To these Mexican American youth, academic achievement, personal self-confidence and the ability to cope interpersonally were all intimately interwoven. (This resembles the Anglo pattern but not the much more tenuous pattern among the Blacks.)

Overall, the data portrayed the Mexican American children at the skilled working-class level as somewhat more effective achievers and copers than the Black children but considerably less effective in any respect than the Anglo population as a whole, including even the working-class Anglo sample. They expected less occupational mobility than any of the working-class or middle-class subsamples in the Anglo population, even less than the Black children expected. Educationally, too, their aspirations were more modest than those of any other ethnic or social class sample in the total population. (Peck, et al., Vol. II, 1972(a), 771-776)

Looked at from one point of view, their limited ambitions might be thought to show considerable realism, insofar as it reflects their limited coping skills in both academic and nonacademic aspects of life. Their own description of themselves as being more apt to use a passive-defensive style in reacting to events than any of the other ethnic groups, and far more than the middle-class Anglo samples, does, however, suggest a somewhat consciously defeatist attitude toward life.

While such a description does appear to represent the Mexican American group as a whole, the data make it very clear that individual children in this group who have the good fortune to develop an active, effective style of coping tend to do better in school. They have more hope for the future, as reflected in their greater degree of educational and occupational ambition. The children, as a group, recognize this phenomenon and so do their teachers, to an appreciable degree. Thus, there appears to be much less universal suppression of ability and aspiration of Mexican American children than unfortunately appears to have been true of the Black children.

The problem is not that teachers systematically discourage Mexican American children (although they do seem to discourage independent children at the elementary school level). Rather, there appear to be factors in the cultural milieu and the family dynamics of these children which do not facilitate the development of coping skills to the same degree as occurs in the Anglo population, even at the same socioeconomic level. Consequently, while some Mexican American children clearly do show a good deal of initiative, self-confidence and effective achievement, equal to some of the better performing Anglo children, such children are in a minority in this ethnic group. The majority are already well behind their Anglo counterparts at the skilled-working class level by the age of ten and much further behind middle-class Anglo students. They do not make up any of this lost ground by fourteen but may even lose some ground, as a total group.

If the causes of this inferior development lie outside of the schools, at the beginning, the fact remains that there is no other social agency in the community which is either able or likely to take effective, continuing responsibility for trying to improve the socio-emotional experiences that limit the development of coping skills. Such programs as Headstart or, preferably, parent-training programs at an even earlier stage in the life of the children, would appear to be vital points of leverage. Programs such as Spaulding has successfully carried out (Spaulding, R.L., 1971) would appear to be the treatment of choice. Such efforts keep coming back into the circle of responsibility of the public schools.

Traditional methods of teaching, however, simply have not faced or effectively dealt with this problem. The present results, like so many other data, vividly testify to the continuing failure of conventional, middle class-oriented schooling to build adequate initiative, ambition and coping skills in these children, as a group. Educators will almost certainly have to retrain themselves to focus on coping skills as their primary objective, not subject matter mastery as the first goal. The ultimate objectives unquestionably include far better mastery of academic skills; but the traditional way of going about this simply is not working for these children.

Their feelings, their sense of having a right to use their own minds independently, their need to know they are well accepted by their agemates before they can apply themselves to intellectual tasks, all of these elements need to be directly addressed by well focused, vigorous, supportive educational strategies of a rather new kind. Many aspects of emotional and motivational learning are involved here, to which traditional curricula pay little organized attention. Spaulding's work has demonstrated that just such a system of education, focused on training teachers to foster children's coping skills, can be highly effective with even more disadvantaged children. Some of the studies conducted at the Research and Development Center for Teacher Education at The University of Texas, with Mexican American children, have shown similar promise (Haak, R.A., Kleiber, D.A., Peck, R.F., & Gatlin, S., 1972; Haak, R.A., & Peck, R.F., 1972; Morris, E.E., & Haak, R.A., 1972).

Rather clearly, there is a great weight of cultural and historical inertia to be overcome if children in even this relatively secure stratum of Mexican American families are to have a chance to equal their Anglo schoolmates. Efforts to achieve this result simply cannot be expected to be cheap, easy or quickly successful. Nonetheless, given the already-available evidence of success when better educational practices are applied, there seems to be little excuse for perpetuating the social injustice which their own cultural tradition and traditional education have forced upon these Mexican American children.

TABLE 1

AUSTIN MINORITY-MAJORITY GROUP

NUMBER OF SUBJECTS

	Austin Anglo	Austin Black	Austin Mexican American
Age 10	Min. 141 Max. 200	Min. 72 Max. 100	Min. 59 Max. 100
Age 14	Min. 165 Max. 200	Min. 80 Max. 100	Min. 76 Max. 100

The number of subjects with complete data varied from one instrument to another. On most variables, the actual number was the maximum shown above. Probability levels for correlations, however, were calculated using the actual number of subjects for each pair of variables.

TABLE 2

CORRELATIONS OF RAVEN APTITUDE WITH ACHIEVEMENT AND PEER REPUTATION

	Age 10				Age 14			
Raven with	Austin Anglo	Austin Black	Austin Mex.Am.		Austin Anglo	Austin Black	Austin Mex.Am.	
Mathematics	28[1]				62	56	40	(*)[2]
Reading	42	28	40		52	36	31	
Grade Point Average	50		33	*[2]	46	23	36	(*)
BRS								
Task Achievement	30	23	34					
Anxiety	22		29			-26		*
Assertion			-21					
Aggression	25		22					

TABLE 3

CORRELATIONS OF GRADE POINT AVERAGE WITH APTITUDE AND ACHIEVEMENT

	Age 10			Age 14		
GPA with	Austin Anglo	Austin Black	Austin Mex.Am.	Austin Anglo	Austin Black	Austin Mex.Am.
Raven	50		33	46	23	36
Mathematics	21	30		58	28	38
Reading	61	29	41	54	30	35

TABLE 4

CORRELATIONS OF BEHAVIOR RATING SCALES WITH ACHIEVEMENT

	Age 10				Age 14		
	Austin Anglo	Austin Black	Austin Mex.Am.		Austin Anglo	Austin Black	Austin Mex.Am.
BRS Task Achievement with							
Mathematics	18	38	33	(*)			25
Reading	40	44	45		21		
Grade Point Average	71	51	64		48	38	49
BRS Authority with							
Mathematics	17	28	31				23
Reading	30	21	44		22		
Grade Point Average	64	31	56		41	21	41
BRS Interpersonal Relations with							
Mathematics	17	34	28				23
Reading	31	30	46		22		
Grade Point Average	65	44	61		45	36	48
BRS Anxiety with							
Mathematics	17		22		17	25	26
Reading	21		44				
Grade Point Average	52		59		30		41
BRS Self-Assertion with							
Mathematics						-31	
Reading							-29
Grade Point Average	-25						-24
BRS Aggression with							
Mathematics		21					24
Reading	25		35				
Grade Point Average	51	24	45		34	22	45

Note

1. Without parentheses .05 P 〈 .0549

2. * = Ethnic difference 〈.0549
   (*) = Ethnic difference 〈.0999

TABLE 5

CORRELATIONS OF READING ACHIEVEMENT WITH VALUES, ASPIRATIONS AND COPING MEASURES

Reading with	Age 10				Age 14			
	Austin Anglo	Austin Black	Austin Mex.Am.		Austin Anglo	Austin Black	Austin Mex.Am.	
Self-BRS								
Task Achievement	19	34						
Occupational Values								
Altruism			22	(*)	16	33	24	
Esthetics	-21							
Independence	18			*				
Implementation								
Success							20	
Self-Satisfaction						22		
Intellectual Stimulation							-22	*
Creativity						21		
Security	23							
Prestige		21		*				
Economic Returns						-24		
Surroundings								
Associates	17		23				30	(*)
Variety		-26		*			-34	*
Follow Father	-15		-25				-21	
Total Intrinsic				*				
Occupational Interest Inventory								
Occupational Expectation		25				25	46	(*)
Occupational Aspiration		32	22			21	35	
Aspiration/Expectation							24	
Education/Aspiration		24			22	20	27	
Social Attitudes Inv.								
Total Active Coping		24	28		16			
Total Passive Coping	17	(18)	32					
Total Act./Def.			-23		-24	-20	-20	
Total Pass./Def.								
Sentence Completion								
Attitude: Authority	-14							
Attitude: IPR								
Attitude: Task Ach.			20	*				
Attitude: Total								
Task Ach: Stance		24			15			
Task Ach: Engagement					14			
Task Ach: Coping		20			18			
Task Ach: Affect Neg.	-14							
Task Ach: Affect Neu.								
Task Ach: Affect Pos.	16							
IPR: Stance	18		23	(*)		21		
IPR: Engagement			22	(*)				
IPR. Coping	18		42	*		28		
IPR: Affect Neg.			-26	*				
IPR: Affect Neu.	14		23	*				
IPR: Affect Pos.								
Authority: Stance	18		29		19	22		
Authority: Engagement								
Authority: Coping	15		26					
Authority: Affect Neg.								
Authority: Affect Neu.								
Authority: Affect Pos.								
Sentence Completion (continued)								
Anxiety: Stance					-17			
Anxiety: Engagement					-15			
Anxiety: Coping			20	*	-14			
Anxiety: Affect Neg.				*				
Anxiety: Affect Neu.				*				
Aggression: Stance						33		
Aggression: Engagement						29		
Aggression: Coping						21		
Agg: Affect Neg.								
Agg: Affect Neu.								
Total: Stance	22		38			32		(*)
Total: Engagement				(*)				
Total: Coping	17		34	(*)		27		
Total: Affect Neg.			-21	*				
Total: Affect Neu.								
Total: Affect Pos.								
Self-Image		24	26	*				
Interaction/Parents						-29		
Interaction/Mother			20					
Interaction/Father				*				
Story Completion								
Story 1 T.A. (Acad.) Coping Eff.		26				31		(*)
Stance		21		(*)		27	20	
Engagement	26	26				24		
Initiation	27				16	32		
Implementation	19	23				31		(*)
Problem Aff.								
Outcome Aff.								
Persistence (A)	18	21				22		
Persistence (B)	19	23				29		
Sociability			20					
Story 2 Auth. Coping Eff.					20			(*)
Engagement					16			(*)
Initiation					22			*
Problem Aff.								
Outcome Aff.					15			
Attit. Toward	-21			*				
Story 4 IPR Coping Eff.					-22			*
Engagement	17				-14			
Initiation								
Implementation	19							21
Problem Aff.								
Outcome Aff.	16							
Persistence		20						
Story 5 Anxiety Cop. Eff.	27	23	26			26	33	
Engagement	25		27					
Initiation				*				
Implementation	20							
Problem Aff.			25					(*)
Outcome Aff.		32				22	28	
Persistence	27					22	30	

TABLE 5

(continued)

Reading with	Age 10				Age 16			
	Austin Anglo	Austin Black	Austin Mex.Am.		Austin Anglo	Austin Black	Austin Mex.Am.	
Story Completion (continued)								
Story 6 T.A. (Nonacad.) C.E.		28			22			
Engagement		27			14			
Initiation		25			20			
Implementation								
Problem Affect		20						
Outcome Affect		22					29	
Persistence		28	35	*	17			
Story 7 IPR Coping Eff.								
Engagement	26		19			23		
Initiation	31					21		
Implementation	27		20					
Problem Affect		20						
Outcome Affect		25	24				29	(*)
Persistence	26					22		
Story 8 Aggression Cop.Eff.		24		*			26	
Engagement								
Initiation							27	
Implementation					16		30	
Problem Affect		32		(*)			20	
Outcome Affect	15	21						
Persistence								
Story 10 Authority C.P.		47		*			38	
Engagement		34		(*)			25	
Initiation		36		*			31	
Implementation	15	36		*			21	
Problem Affect		30						
Outcome Affect	16	34					23	
Persistence		27			19	36	37	
Total Coping Effective.	18	27				32	23	
Total Engagement	20					23		
Total Initiation						28		
Total Implementation	25	22				26		
Total Problem Affect	16							
Total Outcome Affect	24					21		
Total Persistence	22	20				41	23	

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TABLE 6

CORRELATIONS OF GRADE POINT AVERAGE WITH VALUES, ASPIRATIONS, AND COPING MEASURES

GPA with	Age 10				Age 16			
	Austin Anglo	Austin Black	Austin Mex.Am.		Austin Anglo	Austin Black	Austin Mex.Am.	
Self-BRS								
Task Achievement	33			*	22		21	
Occupational Values								
Altruism	21		26				30	
Esthetics							-23	(*)
Independence					-20			
Management								
Success								
Self-Satisfaction					20		21	*
Intellectual Stimulation	25			*				
Creativity								
Security	18	21	20					
Prestige	-17							
Economic Returns	-15							
Surroundings								
Associates	22			*				
Variety								
Follow Father	-25			*	-16			
Total Intrinsic								
Occupational Interest Inv.								
Occupational Expectation					23		33	
Occupational Aspiration					16		28	*
Aspiration/Expectation							26	
Education/Aspiration	18		27		24		30	*
Social Attitudes Inv.								
Total Active Coping		21						
Total Passive Coping	18		24					
Total Act./Defensive	-17				-16		-34	(*)
Total Pass./Defensive								
Sentence Completion								
Attitude: Authority		20		*	21			(*)
Attitude: IPR								
Attitude: Task Achievement					32			*
Attitude: Total					29			*
Task Ach: Stance								
Task Ach: Engagement								
Task Ach: Coping								
Task Ach: Affect Neg.								
Task Ach: Affect Neu.								
Task Ach: Affect Pos.								
IPR: Stance	14				20			*
IPR: Engagement						-21	22	
IPR: Coping	17	-22		*	16			
IPR: Affect Neg.		28		*				
IPR: Affect Neu.		-24		*				
IPR: Affect Pos.					-21	-24		(*)
Authority: Stance								
Authority: Engagement								
Authority: Coping								
Authority: Affect Neg.						23		
Authority: Affect Neu.						-20		
Authority: Affect Pos.								

TABLE 6

(continued)

	Age 10				Age 14			
GPA with	Austin Anglo	Austin Black	Austin Mex.Am.		Austin Anglo	Austin Black	Austin Mex.Am.	
Sentence Completion (continued)								
Anxiety: Stance		-25	21	*				
Anxiety: Engagement	-18							
Anxiety: Coping		-28		*				
Anxiety: Affect Neg.		28		*		22		(*)
Anxiety: Affect Neu.		-28		*		-22		(*)
Aggression: Stance	21			*				
Aggression: Engagement	18		-24	*				
Aggression: Coping								
Aggression: Affect Neg.								
Aggression: Affect Neu.								
Total: Stance								
Total: Engagement								
Total: Coping						20		*
Total: Affect Neg.		25		(*)		24		(*)
Total: Affect Neu.		-23				-20		
Total: Affect Pos.								
Self-Image							22	
Interaction/Parents								
Interaction/Mother								
Interaction/Father	-15			(*)				
Reality/Fantasy	42		28	(*)	28	37	23	
Story Completion								
Story 1 T.A.(Acad.) Coping Effectiveness								
Stance								
Engagement	18		24					
Initiation	27		24	*	24			
Implementation						21		
Problem Affect				(*)				
Outcome Affect			19					
Persistence (A)	14							
Persistence (B)								
Sociability			24	(*)				
Story 2 Auth. Cop. Eff.								
Engagement								
Initiation								
Problem Affect								(*)
Outcome Affect	-18			(*)				
Attit. Toward								
Story 4 IPR Coping Eff.								
Engagement	29			*				
Initiation	28			*				
Implementation	32			*				
Problem Affect								
Outcome Affect	18							
Persistence	27		22					
Story 5 Anxiety: Cop.Eff.	25		35	*				
Engagement	24		27	*				
Initiation	20			*				
Implementation	22		25					
Problem Affect			32	(*)				
Outcome Affect			29					
Persistence	30		20	*				

TABLE 6

(continued)

	Age 10				Age 14		
GPA with	Austin Anglo	Austin Black	Austin Mex.Am.		Austin Anglo	Austin Black	Austin Mex.Am.
Story Completion (continued)							
Story 6 T.A.(Nonacad.) Cop.Eff.							
Engagement							
Initiation		19					
Implementation							
Problem Affect							
Outcome Affect		21	23		20		
Persistence			22				
Story 7 IPR - Coping Eff.			34	*			25
Engagement	27		29	*	17		23
Initiation	28		34	*	15		23
Implementation	25		29	(*)			
Problem Affect			23				
Outcome Affect			24				
Persistence	26		37	*			20
Story 8 Aggression Cop.Eff.					18		24
Engagement					14		27
Initiation					20		25
Implementation					22		30
Problem Affect							
Outcome Affect							
Persistence							22
Story 10 Authority C.E.		30					
Engagement							
Initiation							
Implementation		21					
Problem Affect	15				-16		
Outcome Affect		30					
Persistence	18	22			22		20
Total Coping Effective.	15		23	(*)	18		21
Total Engagement	22		21	*			
Total Initiation	22			*	20		
Total Implementation	23			*	16	21	
Total Problem Affect	14			(*)			
Total Outcome Affect	24		21	(*)	16		
Total Persistence	26		21	*	21		

TABLE 7

COMPARISON OF MEAN SCORES OF AUSTIN ANGLO, BLACK AND MEXICAN AMERICAN WORKING-CLASS CHILDREN

	*Ethnic Groups						
Variable	**Austin Anglo**	**Austin Black**	**Mexican American**	***Male**	***Female**	***10 yr.**	***14 yr.**
Raven	52.6	45.4	49.3				
Mathematics Achieve.	52.5	45.9	48.8				
Reading Achievement	53.3	46.9	48.4	47.8	49.9		
Grade Point Average	51.3	48.3	48.9	48.2	50.8		
SELF-BRS:							
Academic Task Achieve.	1.26	1.54	1.32	1.30	1.45		
Nonacademic Task A.	1.42	1.68	1.40				
Authority							
Interpersonal Relations	1.40	1.68	1.44	1.35	1.51		
Anxiety							
Self-Assertion				(1.39)	(1.28)		
Aggression	1.4	1.6	1.4	1.00	.76		
Summary				1.6	1.3		
PEER BRS:							
Academic Task Achieve.							
Nonacademic Task Ach.				.92	1.14		
Authority							
Interpersonal Relations				.89	1.12		
Anxiety	1.00	.97	1.06	.92	1.10		
Self-Assertion	.99	1.02	.96				
Aggression				1.06	.92		
Summary				(.98)	(1.01)		
OCCUPATIONAL VALUES:				.93	1.09		
Altruism							
Esthetics				7.9	9.5	8.4	9.0
Independence	5.7	4.9	4.6	4.4	5.8	5.7	4.5
Management						4.7	5.4
Success							
Self-Satisfaction				6.7	6.1	5.5	7.3
Intellectual Stimu.				8.4	9.2	8.0	9.5
Creativity	6.8	7.6	7.0	8.6	9.1	9.0	8.7
Security	8.7	8.0	8.5	7.9	6.4	7.9	6.4
Prestige	6.1	7.2	6.0			7.8	9.0
Economic Returns						6.8	6.0
Surroundings				7.6	6.8		
Associates	8.5	7.4	7.6	7.1	7.9		
Variety				7.5	8.1	7.2	8.5
Follow Father				7.0	7.5		
Intrinsic Total				5.9	2.7	5.7	2.9
Extrinsic Total	6.9	6.3	6.1	6.9	7.3		
OCCUPATIONAL INTEREST INV.:				(6.5)	(6.3)	6.2	6.6
Occupational Aspiration	2.9	2.7	3.1				
Occupational Expectation	3.2	3.0	3.4				
Education/Aspiration	2.0	2.0	2.3				
Asp/Father Occupation	7.3	7.7	7.5			(2.2)	(2.0)
SOCIAL ATTITUDES INVENTORY:						7.3	7.7
Total Active Coping							
Total Passive Coping	6.0	6.5	5.8	6.2	5.7		
Total Active-Defensive						6.4	5.9
Total Passive-Defensive	3.3	3.7	3.8	2.7	1.7		
SENTENCE COMPLETION:						3.8	3.3
Attitude: Authority							
Attitude: IPR	10.1	9.8	10.2			8.0	7.3
Attit: Task Achieve.	7.1	7.6	7.4	(9.9)	(10.2)	10.3	9.8
Attitude: Total				(24.7)	(25.2)	25.6	24.3

---

*Where means are given, the groups differ significantly below .01; in parentheses, below .05 level.

	*Ethnic Groups						
Variable	**Austin Anglo**	**Austin Black**	**Mexican American**	***Male**	***Female**	***10 yr.**	***14 yr.**
SENTENCE COMPLETION (continued)							
Aggression: Stance							
Agg: Engagement				1.8	2.0		
Agg: Coping				1.8	1.9		
Agg: Negative Aff.						2.2	2.4
Agg: Neutral Aff.							
Authority: Stance							
Auth: Engagement	(7.3)	(7.3)	(7.5)			8.9	9.1
Auth: Coping	(11.0)	(10.9)	(11.4)	7.4	7.2	(7.4)	(7.25)
Auth: Negative Aff.						10.8	11.3
Auth: Neutral Aff.	(2.5)	(2.3)	(2.6)	1.4	1.6	1.7	1.4
Auth: Positive Aff.	.01	.05	.03	2.6	2.3	2.3	2.6
Anxiety: Stance				.02	.04		
Anx: Engagement	(4.67)	(4.76)	(4.84)	5.2	4.8		
Anx: Coping				4.9	4.6	4.9	4.6
Anx: Negative Aff.				6.4	5.7		
Anx: Neutral Aff.				5.1	7.6	(6.8)	(5.8)
IPR: Stance				1.5	1.2	(1.3)	(1.4)
IPR: Engagement						6.4	6.7
IPR: Coping						6.0	6.2
IPR: Negative Aff.						7.9	9.2
IPR: Neutral Aff.						1.5	1.1
IPR: Positive Aff.						1.5	1.8
Task Achievement Stance						.03	.01
T.A.: Engagement							
T.A.: Coping							
T.A.: Negative Aff.						10.0	10.5
T.A.: Neutral Aff.						.46	.29
T.A.: Positive Aff.							
Total: Stance						.20	.31
Total: Engagement	(26.2)	(26.2)	(26.6)			29.5	30.2
Total: Coping				(26.5)	(26.1)		
Total: Negative Aff.						37.0	39.6
Total: Neutral Aff.				4.1	4.7	4.8	4.0
Total: Positive Aff.				8.6	8.0	7.9	8.7
						(.26)	(.35)
Reality/Fantasy	-4.4	-1.1	-1.3				
Self-Image				-3.4	-1.2		
Interaction Parents	5.2	5.3	5.0				
Interaction Mother						5.3	5.0
Interaction Father	4.7	4.8	4.5				
STORY COMPLETION:						4.9	4.5
Total Stance (insufficient data)							
Total Engagement	8.7	7.6	8.6				
Total Initiation	13.7	12.4	13.8	8.0	8.6	7.8	8.8
Total Implementation	14.0	12.2	14.0	12.9	13.8	12.8	13.9
Total Affect: Problem	13.9	12.9	13.4	(13.0)	(13.8)	12.6	14.2
Total Affect: Outcome	15.9	15.3	15.8				
Total Persistence	5.7	5.1	5.7	15.4	15.9	15.4	15.9
				(5.3)	(5.6)	5.3	5.7
Story 1 Coping Eff.	17.5	15.1	16.4	15.4	17.2		
Story 2 Coping Eff.							
Story 4 Coping Eff.	14.4	12.5	13.1				
Story 5 Coping Eff.	13.2	9.9	11.2			13.0	13.7
Story 6 Coping Eff.	13.0	10.5	11.8			10.7	12.2
Story 7 Coping Eff.	11.4	7.8	9.1	11.4	12.2		
Story 8 Coping Eff.	13.9	11.9	12.7			8.2	10.6
Story 10 Coping Eff.	11.3	8.3	9.6	12.0	13.7	12.1	13.6
Total Coping Eff.	97.4	86.9	95.8	8.6	10.8	8.6	10.8
				90.8	95.9	90.5	96.3

SUMMARY AND IMPLICATIONS

The study set out to develop an improved conceptual system for explaining effective behavior, especially achievement behavior; to build reliable measures of the components of that behavior; to develop and apply the measures internationally; and to validate the measures and the concepts against objective criteria of achievement.

Such a conceptual system was built by an eight-nation team. It defined three sets of components of effective behavior: a sequence of coping actions or skills; feelings and attitudes assumed to facilitate effectiveness; and the intensity of motivation and the particular kinds of motives for performing effectively in the realm of school achievement (Tables 1 and 2). A set of projective, self-report, and peer rating measures was developed, embodying these presumed elements of effective behavior. The instruments were developed in international conference, translated, back-translated, pilot-tested and revised until item-comparability in six languages was attained. The measures were taken in a stratified sample of 800 in each site in 1965: boys and girls, ages 10 and 14, upper-middle and skilled working class, in equal numbers. The sites were Sao Paulo, Brazil; London, England; Milano, Italy; Tokyo, Japan; Mexico City, Mexico; U.S.A.: Austin, Texas; U.S.A.: communities in the Chicago area; and Ljubljana, Yugoslavia. In 1968, one instrument was dropped and two were added, and the study was repeated on a new, similar sample of 400 in each site, now including Hannover, Heidelberg and Koblenz, West Germany.

Initially, correlational and variance analyses were performed on the individual variables. In 1977, advances in research technology and renewed funding made it possible to factor analyze each instrument in each national (and age) sample, then to perform multiple regression analyses to assess the power of the coping and motivation measures to predict school achievement, beyond the effects of aptitude, as well as the effects shared with aptitude. The factors were also compared across cohorts within each country, and across countries, to identify universal and country-specific clusters of coping components, and to assess their stability over time.

An appropriate conceptual system was successfully developed, judging by two criteria. Multiple-judge teams in all countries reached a strong consensus (.84 reliability, overall), on what components constitute effective coping action (Table 2). Second, when some of these concepts were embodied in a Sentence Completion instrument, children in all countries, in both years, generated five common factors: effective coping with achievement, peer relations, authority, anxiety and aggression. In doing so, they demonstrated that coping effectiveness is specific to each behavior area and that effective coping includes the skills of confronting problems, actively engaging with them, and showing neutral or positive feelings in the process. In responding to a Social Attitudes Inventory, in keeping with the theory of the study, they generated a Coping-Defensive factor, rather than a less evaluative, stylistic Active-Passive dimension.

The test-retest reliability of the instruments ranged from satisfactory (Sentence Completion .75 to .80 on the main five factors; Occupational Values, .63 to .83; Occupational Aspiration levels, .51 to .89; Social Attitudes Inventory III, .60 to .72; Behavior Rating Scale, .83 to .97) to inadequate (Views of Life, below .60). The reliability of the SAI-I was not tested, unfortunately, although it proved quite valid. The stability of the instrument factor scores across cohorts similarly ranged from extremely high (Sentence Completion) to low (Occupational Values).

The comparison of factors across countries showed ten "universal" dimensions of coping: the Sentence Completion coping skill and attitude factors for the five behavior areas; the SAI-I coping score and defensive score; the SAI-III good-coping score; and, of course, the educational and occupational aspiration scores, used as measures of the intensity of motivation to achieve. In the realm of valued career-rewards, considered as motives, each nation had its own distinctive profile, and there were no universal factors.

The regression findings yielded several kinds of verification for the theory and the instruments. Overall, the coping/motivation measures showed more to predict achievement, both alone and in conjunction with aptitude, than almost any previous non-cognitive measures have shown. This ranged from a low in Brazil in 1965 (7% total math achievement explained; 14%, reading) to highs in 1968 in England (56% of math explained) and West Germany (52% of reading) (Table 16).

As for validation of the elements of the concept system, the results showed that coping skills in the five behavior areas significantly affect achievement, demonstrating that skills in nonacademic areas do affect achievement. Defensive behavior proved adverse to good achievement everywhere but in Japan.

Strength of motivation, as estimated by the aspiration scores, proved a powerful predictor. Indeed, the quickest, cheapest way to predict, quite accurately, how well children will perform in school is to ask them how far they want to go in school. Clearly, most children, in every country studied, are quite realistic in matching their educational aspirations to their actual academic skills; by implication, they must be quite realistic in appraising their own skills, too.

The kinds of motives for working also significantly predict achievement, but in nationally idiosyncratic ways to a considerable degree. The kinds of motives that make for successful achievement, and especially for good grades, seem to depend on what the particular society values and encourages.

Indeed, even where the universally esteemed coping skills were at issue, the national samples and even the cohorts differed on which kinds of coping skills affected achievement (skill with peer relations, or aggression, or authority, etc.).

The many patterns in the present data illustrate the importance of adopting Kurt Lewin's view of human life as a multivariate, interactive process whose lawful regularities cannot be explained by oversimplified general "laws" of behavior (Cronbach, 1975), but only by a Person-Environment-Interaction model (Hunt, 1975). While the present evidence almost all supports the general idea that independent coping skills and the motivation to use them are important for effective achievement, it equally illustrates that there may be crucially important differences in the particular skills and the particular motivations that work best in different societies. What is more, changes in these particulars can occur over a relatively short time within any one modern society.

This is not at all to say that explanations of human behavior are undiscoverable, or a matter of chaotic, lawless unpredictability. It is merely to reiterate the logic of the emerging science of ecology: circumstances do alter cases. In order to understand any one case, a great many relevant circumstances must be taken into account.

Where an explanation of effective behavior is concerned, this requires specifying the particular domain of behavior and measuring at least a fair sample of the many things that can influence that behavior. This is difficult, to be sure, and it keeps things always at least somewhat uncertain when it comes to predicting what will work next year, in the next country. But then, the "simple" three-body problem is not yet perfectly solved in the field of celestial dynamics.

The concept system developed here, while not perfectly tested by this kind of design, did show promising validity. In its coping-skill component, it may fill a gap in existing theory by specifying a logical sequence of observable actions that make up the coping process. It applies, as White (1974) prefers, to challenges of everyday living, not just to critical, stressful emergencies. This international research team's definition of the affective parts of coping, as well as its rational properties, resembles Heath's concept of "maturity" (Heath, 1977). He makes a useful distinction between general maturity and competence in one specific behavior area. Similarly, children in this study could be effective in one area without equivalent competence in other areas. Heath's concept of "maturity" might be equated to a high level of effectiveness in most or all of the five areas of behavior. Murphy and Moriarty (1976) and Haan (1977) also see coping as a process of integrating one's resources.

One relationship looks fascinating, worth much further research: the possibility of causal linkages between national styles of coping and motivation, and national patterns of economic growth. It is certainly plausible to argue that the vigorous Japanese economy might be rooted in the kind of achievement-oriented, independence-seeking, power-seeking drives displayed by the ablest Japanese youth in this study. The Japanese youth as a whole, though, displayed a value profile quite at odds with this, which may create stress in the future, if not a reversal of the national economic pattern. The explosive economic vigor of Sao Paulo and Mexico City, too, are matched by the optimistic ambition of their youth. The case in West Germany is less clear. These German youth showed more concern for mastering anxiety and aggression, than skill in coping with achievement tasks. The best achievers among them did not value success, prestige or high income but independence and interesting work. Does this pattern foreshadow a slowing down of the fast pace of German economic growth in the next twenty years?

Certainly, the youth of England and the U.S., in their values, skills, and primary concerns, look very likely to keep economic growth at its recent low levels, if they become the pacesetters of the next generation. A longitudinal follow-up of these subjects would also be valuable, to determine the continuity of coping skills and motives into adult life, and their affects on career choice and career effectiveness. (Such a follow-up study is now underway, in Austin.)

One or two educational implications seem of prime importance. If children are to cope well with life, the evidence says, they must be encouraged and taught to be increasingly self-starting, self-sustaining, independent problem solvers. Moreover, they need to learn to cope well with anxiety, aggression and interpersonal relations. Apart from their intrinsic value, these skills strongly affect academic learning. This is not what typical urban schools foster, in any society. In some countries in this study, teachers seemed out of touch with what students actually knew, or did. Mass education, in a conforming style, is almost forced upon schools by limitations of teacher time, resources, or even moral support for encouraging student independence of thought. More help is needed for parents, administrators, and teachers: Help to learn to recognize deficiencies in student coping skills; help to learn how to value and enjoy children who exercise these active skills; and moral support for this educationally unconventional pursuit. It might help to couch all talk, not in terms of "coping skills" but "good work habits," for that is really what they are, in the realm of achievement. New teacher training materials and well designed workshops are almost essential, if this new set of school objectives is ever to become standard and respectable: Teaching the steps in the coping sequence. This would respond to Zigler's urging to assess "social competence," as the most important outcome of education (Zigler and Trickett, 1978).

The present study has some clear limitations. Its samples were all urban, all from developed, modern communities, and they left out the poorest children. The psychometric strategy meant the use of indirect, relatively weak measures, instead of minute observation of live behavior, and they are subject to social desirability effects and other distortions. Further, this approach did not supply a full test of the reality of the coping skill sequence, as a total process. New research will be needed to do that. Despite these limitations, progress has been made toward the construction of a general theory of effective behavior that illustrates the value, indeed the necessity of considering a wide range of psychological, cultural, social and historical variables if a full, accurate understanding of human nature is to be achieved.

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Table 1

The Components of Effective Behavior and Their Measures in This Study

EFFECTIVE BEHAVIOR

COPING SKILLS

Confront (SC, VOL)
Engage (SC)
Initiate (VOL - Initiate, Independent)
Conceive of Solution (VOL)
Use Aid or Advice (SC)
Implement (VOL-Implement, Instrumentality, Active Under Stress)
Persist (St.C)
Achieve Solution (SC-Copes, SAI-Copes, not defensive)

MOTIVATION

Educational Aspiration	(D)
Occupational Aspiration	(OII)
Finds intrinsic value in work	(VOL
Wants earned vs. bestowed status	(VOL)
Puts achievement ahead of Interpersonal Relations	(VOL)

Preferred career rewards among 15 possible values	(OVAL)

(Intrinsic rewards likely to foster achievement; Super, 1957)

ATTITUDES AND FEELINGS

In Five Areas of Life

Positive Attitude	(SC)
Positive Affect expressed	(SC)
-Depressive Affect expressed	(SC)
-Hostile Affect expressed	(SC)

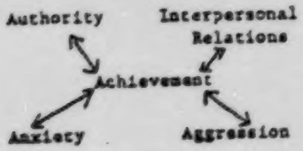
General

Views life as complex	(VOL)
Emotionally expressive	(VOL)
Prefers competition to cooperation	(VOL)

Self-Evaluation

Locus of Control	(VOL)
Self-Esteem	(VOL)

Effective Behavior in Five Areas of Life



Instruments

SC = Sentence Completion
VOL = Views of Life
OVAL = Occupational Values
OII = Occupational Interests Inventory
D = Demographic Questionnaire
St.C. = Story Completion

Table 2

SEQUENTIAL SKILLS IN THE COPING PROCESS

Non-Coping Behavior	COPING BEHAVIOR		Quality of Coping	
	Coping Acts	Additional Components of Coping Effectiveness	Moderate	High
1. No	CONFRONT			
AGGRESSIVELY		CONSTRUCTIVELY	Delayed	Immediate
2. No	ENGAGE		Procrastinate	Act; allowing for reflection
3. Other		Who INITIATES?	Joint	Self
4. Yes, UNSOUGHT		AID or ADVICE used?	Self-sought	Not used
5. OTHER		Who conceives of SOLUTION?	Joint	Self
6. OTHER	IMPLEMENT		Joint	Self
7. GIVES UP, BLAMES OTHERS, OR REACTS AGGRESSIVELY		PERSISTENCE	Seeks help	Alters the situation, or recognizes it as genuinely unsolvable.
8. UNSUCCESSFUL	ACHIEVE SOLUTION		Delayed solution	Immediate solution
9. NEGATIVE		SELF-EVALUATION OF OUTCOME	Mixed; or no strong evaluative reaction	Positive

SECTION VI

APPENDICES

COPING STYLES AND ACHIEVEMENT:
A CROSS-NATIONAL STUDY OF SCHOOL CHILDREN

The University of Texas at Austin

1981

DEMOGRAPHIC INSTRUMENT

INTRODUCTION

This instrument was designed for use with school children in the ten and fourteen-year-old bracket (fifth and eighth graders). It was designed to be administered in a group setting. The purpose of the instrument is to gather demographic information about the subject and his family. This information is used primarily to determine the socioeconomic class in which the child should be classified. In addition, other information is obtained which may be used to determine whether or not the subject meets the requirements for acceptance into one of the sample groups, or to classify him in some other manner.

The instrument consists of twenty two items which the subject answers by one of two methods: (1) filling in the blank to the right of the item, or (2) circling that alternative among several alternatives which applies to him. This instrument may be found in Appendix A. It will be noted that attached to the Demographic instrument itself is a one-page "Short Checklist." This checklist was added as a brief screening device to determine whether or not a child was sufficiently "literate" so as to follow simple instructions, read items, and correctly answer them. If a child incorrectly marked more than one of these ten extremely simple questions he was dropped from the sample. It was felt that incorrectly marking more than one item indicated either (a) inability to read and follow instructions, or (b) an uncooperative attitude on the part of the subject.

Administration

This instrument must be administered very carefully, especially when being used with younger children. Since the most factual information possible is required, care should be taken to see that every item is answered accurately and in a manner so that the response can be coded. Children who have trouble with any item should be helped and coached until meaningful information can be obtained. It is preferable that the test administrator have several assistants with him when obtaining data from the younger children so that individual questions and problems may be handled promptly. When it is impossible to obtain codable information from a given child, this information may sometimes be obtained from the teacher. However, experience suggests that a child who is unable to answer a large number of the items should usually be dropped from the sample as he will not be able to handle the remainder of the instruments in the battery either.

APPENDIX A

CROSS NATIONAL PROJECT
THE UNIVERSITY OF TEXAS
(Stage I)
STUDENT QUESTIONNAIRE

DO NOT WRITE IN THESE SPACES

CONFIDENTIAL

Country 1-2
Group 3

Today's Date________________________

1. Name of your school______________________________ 4-5
2. Full name (print)________________________________ 6-8
3. Your sex (circle one) Boy Girl 11
4. Your age in years ______________ 12-13

   Date of birth____________________

5. a. Grade in school______________ 14

   b. Including this school year how many years have you been attending school? Circle the appropriate (correct) number. 15

   3 years 5 years 7 years 9 years

   4 years 6 years 8 years 10 years

6. What is your religion (circle number) 16

   1 - Catholic 3 - Jewish 5 - Other______

   2 - Protestant 4 - Anglican 6 - None

7. Where were you born________________________________ 17

   Town State Country

8. Place of your father's birth________________________ 18

   State Country

9. Place of your mother's birth________________________ 19

   State Country

10. Have you attended any other schools before this one? Circle the correct one. 20

    No. Yes - 2 others Yes - 4 or more others

    Yes - 1 other Yes - 3 others

11. Have you repeated any grades? (Circle one) 21

No Yes - 2 grades

Yes - 1 grade Yes - 3 or more grades

12. How far do you want to go in school (what grade)? 22

____

13. How far did your father go in school (what grade)? 23

____

14. a. Where does your father work? ______________ 24

____

b. What does he do? ______________

____

c. What is the name of his job? ______________

____

15. a. Circle the correct number. 25

1. I live with my father and mother
2. I live only with my father
3. I live only with my mother
4. I live with my father or mother and a step-parent
5. I do not live with either of my parents

b. Circle the correct number, if any applies to you 26

1. My mother is dead
2. My father is dead
3. My parents are separated

16. How many brothers do you have who are older? ____ 27
______________ who are younger? ______________ 28

17. How many sisters do you have who are older?______ 29
____________________who are younger?____________ 30

18. How many persons other than parents, brother and sisters live in your home?____________________ 31

19. Where do you come in your family? 32

1 - only child 3 - youngest

2 - oldest 4 - in between

20. Do you work for money outside your home? Circle the correct answer 33

1 - Yes 2 - No

If "Yes," what kind of work do you do?____________ 34

____

21. What kinds of work do you do at home?____________ 35-36

____

22. In your home do you have the following?

a. Radio Yes No (Circle one) 37
b. TV Yes No (Circle one) 38
c. A refrigerator Yes No (Circle one) 39
d. A telephone Yes No (Circle one) 40
e. An automobile Yes No (Circle one) 41
f. A daily newspaper Yes No (Circle one) 42

---

* Is your present school course one that - (Circle correct number) 43

1 - Could lead to university? 48

2 - Could prepare you for a specific trade or occupation? 49

3 - Is a general course with no specific occupation or course of study in view? 50

DO NOT WRITE BELOW THIS LINE 78-79/0

* This section omitted from Stage III. 44-45
46
47

CROSS NATIONAL PROJECT
THE UNIVERSITY OF TEXAS

Name____________________

SHORT CHECKLIST

Read carefully the following statements, and then answer by marking with an "X" in the space provided on the right. If you think the statement is true, put an "X" where it says True, if you think the statement is false, put an "X" where it says False.

1. A dog is an animal True_____ False _____
2. I live in Texas True_____ False _____
3. My mother is a woman True_____ False_____
4. I go to school in Japan True_____ False _____
5. The sun is green True_____ False _____
6. I have three eyes True_____ False _____
7. Automobiles have wheels True_____ False _____
8. Fire is hot True_____ False _____
9. We write on the blackboard with pencils True_____ False _____
10. A ball is always square True_____ False _____

APPENDIX B

Student Behavior Rating Scale

Stage I

INSTRUCTIONS

When students are together in school they get to know a lot about each other. It is important for us to know some of these things.

On each of the following pages is a list of all the students in the class, including yourself. At the top of each page is a question. We want you to read the question, then think about all the people in the class. Then do what the questions say. All of your answers will be confidential and will not be shown to your teacher or anyone else in the school.

We want your own opinion, so work alone. I will read the question aloud before you start work.

THERE IS A QUESTION ON EACH PAGE. EACH PAGE HAS ON IT THE NAMES OF ALL THE STUDENTS IN THE CLASS.

BRS I:

THIS IS A QUESTION ABOUT DOING SCHOOL WORK.*

Put an X in front of the names of the 8 students in your class who work hardest at their lessons.

Put an O in front of the names of the 8 students in your class who do the least work at their lessons.

______ Anderson, Claire
______ Baker, Katherine
______ Bush, Barry
______ Butts, Gene
______ Cabe, Brenda
______ Campbell, Carrie
______ Cantwell, Vernon
______ Carter, Jennifer
______ Cass, Harry
______ Dale, Kelly
______ Davis, Jacque
______ Edwards, Freddy
______ Faust, Gay
______ Frost, Cheryl
______ Fromm, John
______ Gage, Kenneth
______ Grant, Davie
______ Henry, Linda
______ Hill, Louise
______ Hutchins, Steve
______ King, Willy
______ Lambert, Nancy
______ Morris, Ray
______ Morrison, Tracey
______ Parsons, Myra
______ Rose, Larry
______ Sanders, Wil
______ Staley, Jerry
______ Thomas, Ann
______ Turner, Liz
______ Williams, Leslie
______ Wilson, Joan

BRS 2: THERE ARE MANY THINGS BESIDE LESSONS WHICH STUDENTS DO, IN AND OUT OF CLASS.

Put an X in front of the names of the 8 students in your class who work hardest at these outside activities.

Put an O in front of the names of the 8 students in your class who do the least work at these outside activities.

BRS 3: THIS IS A QUESTION ABOUT GETTING ALONG WITH TEACHERS AND OTHER GROWNUPS.

Put an X in front of the names of the 8 students in your class who get along best with teachers and other grownups.

Put an O in front of the names of the 8 students in your class who get along least well with teachers and other grownups.

BRS 4: THIS IS A QUESTION ABOUT WORKING TOGETHER TO GET THINGS DONE.

Put an X in front of the names of the 8 students in your class who are the best in working with others.

Put an O in front of the names of the 8 students in your class who work least well with others.

BRS 5: Put an X in front of the names of the 8 students in your class who do not get upset easily when things go wrong.

Put an O in front of the names of the 8 students in your class who get upset most easily when things go wrong.

BRS 6: Put an X in front of the names of the 8 students in your class who fight hardest to get their own way.

Put an O in front of the names of the 8 students in your class who fight the least to get their own way.

BRS 7: THIS IS A QUESTION ABOUT WHAT PEOPLE DO WHEN ANOTHER PERSON IS ANGRY AT THEM.

Put an X in front of the names of the 8 students in your class who can work it out with the angry person.

Put an O in front of the names of the 8 students in your class who just don't know what to do when someone is angry at them.

---

* When the original test was administered each question was written on a separate page along with a roster of all students in the class. The names listed in this writeup are fictitious and only given as an example.

APPENDIX C

Stage III Behavior Rating Scales

Name____

School______________________Grade________________

Age______________________Sex________________

City______________________Date________________

INSTRUCTIONS

When students are together in school, they get to know a lot about each other. We want to find out how well each of you knows the others in his class.

On each of the following pages, at the top of the page, is a question. We want you to read the question, and then to think very carefully about all the people in the class. Then do what the question says. None of your answers will be shown to your teacher or to anyone else in the school, so do not be afraid to be honest. We want your own opinion, so you are to work alone. No one is to try and look on anyone else's paper.

There is a question on each page. Do not turn any page until you are told to do so.

BRS 1: WHO DO YOU LIKE MOST IN YOUR CLASS?*

A. Write down the names of the ______ students in your class whom you like the best.

B. Write down the names of the ______ students in your class whom you like the least.

We have just asked you to name the students you like the best and those you like the least. The reason we asked you that question is to help you to be able to see the difference between your liking someone and in saying that someone is good or bad at doing certain things. Some of the people you like may have faults and some of the people you don't like may be very good at some things.

The rest of the questions do not have anything to do with how much you like someone. From now on we do not want you to choose certain students just because you like them or because you don't like them. Instead, we want you to choose the students who best fit the description that will be written on each page.

BRS 2: WHO WORKS HARDEST IN SCHOOL?

A. Write down the names of the ______ students in the class who work the hardest at their lessons.

B. Write down the names of the ______ students in the class who do not work hard at their lessons.

BRS 3: WHO GETS ALONG BEST WITH TEACHERS?

A. Write down the names of the ______ students in this class who get along best with teachers.

B. Write down the names of the ______ students in this class who do not get along well with teachers.

BRS 4: WHO GETS ALONG BEST WITH THE STUDENTS IN YOUR CLASS?

A. Write down the names of the ______ students in this class who get along best with most of the other students.

B. Write down the names of the ______ students in this class who do not get along with most of the other students.

BRS 5: WHO CAN USUALLY BE COUNTED ON TO KEEP WORKING AT TASKS UNTIL THEY ARE FINISHED?

A. Write down the names of the _____ students in this class who can be counted on to keep working at tasks until they are finished.

B. Write down the names of the _____ students in this class who can not be counted on to keep working at tasks until they are finished.

BRS 6: WHO USUALLY GETS THEIR OWN WAY?

A. Write down the names of the _____ students in this class who usually get their own way with other students.

B. Write down the names of the _____ students in this class who seldom get their own way with other students.

BRS 7: WHO STARTS WORKING AT THINGS THAT NEED TO BE DONE WITHOUT HAVING TO BE TOLD?

A. Write down the names of the _____ students in this class who start working at things that need to be done without having to be told.

B. Write down the names of the _____ students in this class who have to be told to start working at things that need to be done.

BRS 8: WHO HAS THE BEST IDEAS?

A. Write down the names of the _____ students in this class who usually have the best ideas about what to do.

B. Write down the names of the _____ students in this class who seldom seem to have any good ideas.

BRS 9: WHO LOSES THEIR TEMPER?

A. Write down the names of the _____ students in this class who are more likely to lose their temper when something happens that they don't like.

B. Write down the names of the _____ students in this class who stay calm and don't lose their temper when something happens that they don't like.

BRS 10: WHO WORRIES MOST?

A. Write down the names of the _____ students in this class who worry the most about things.

B. Write down the names of the _____ students in this class who never seem to worry about anything.

---

* In the tests which were administered, each question was written on a separate page with Part A using half of the page and Part B using the other half.

APPENDIX D

Occupational Values

(Stages I and III)

Name ____

School ____________________________ Grade ____________

Age ______________________________ Sex ______________

City _________________________________ Date __________

INSTRUCTIONS TO STUDENTS

On the pages which follow, you will find 110 pairs of statements. Each pair has two statements which talk about different kinds of work. The statements are marked (a) and (b).

You should read each of the two statements carefully, and then circle the letter (a) or (b) to show which of the two kinds of work you would rather do.

Here is an example:

1. (a) Work in which you could lead other people.
   (b) Work in which you can one day become famous.

If you would rather have a job in which you could lead other people than a job in which you could one day become famous, you would circle the letter (a), as shown below:

1. [✓ (a)] Work in which you could lead other people.
   (b) Work in which you can one day become famous.

If, instead, you would rather have a job in which you could one day become famous than a job in which you could lead other people, you would circle the letter (b), as shown below:

1. (a) Work in which you could lead other people.
   [✓ (b)] Work in which you can one day become famous.

Begin with the first pair of statements and go on, in order, until you finish all of the pairs. Please do not skip any pairs. Please decide on one every time, even when you are not sure which one you would rather do the most.

1. (a) Work in which you could lead other people
   (b) Work in which you can one day become famous

---

2. (a) Work in which you can make a lot of money
   (b) Work which you are free to do in your own way

---

3. (a) Work in which you can make a lot of money
   (b) Work in which you would have a nice place to work

---

4. (a) Work in which you can help other people
   (b) Work which you are free to do in your own way

---

5. (a) Work in which you would do the same kind of work your father does
   (b) Work like that of a musician or an artist

---

6. (a) Work in which you can one day become famous
   (b) Work in which you can be with people you like

---

7. (a) Work which you are free to do in your own way
   (b) Work in which you could lead other people

---

8. (a) Work in which you can help other people
   (b) Work in which you can be with people you like

---

9. (a) Work in which you are always sure of having a job
   (b) Work which you are free to do in your own way

---

10. (a) Work in which you would have a nice place to work
    (b) Work which you are free to do in your own way

---

11. (a) Work in which you would be doing many different things
    (b) Work where you can get ahead

---

12. (a) Work in which you would do the same kind of work your father does
    (b) Work in which you can help other people

13. (a) Work in which you could lead other people
(b) Work in which you would be doing many different things

---

14. (a) Work in which you can learn about many interesting things
(b) Work where you can get ahead

---

15. (a) Work in which you can help other people
(b) Work in which you can make a lot of money

---

16. (a) Work in which you can one day become famous
(b) Work in which you can make a lot of money

---

17. (a) Work in which you can help other people
(b) Work in which you would have a nice place to work

---

18. (a) Work in which you can be with people you like
(b) Work in which you can make a lot of money

---

19. (a) Work in which you can be with people you like
(b) Work in which you would have a nice place to work

---

20. (a) Work in which you can learn about many interesting things
(b) Work in which you could lead other people

---

21. (a) Work in which you can make a lot of money
(b) Work in which you can feel good about doing the job well

---

22. (a) Work in which you can learn about many interesting things
(b) Work in which you can help other people

---

23. (a) Work in which you could make or invent new things
(b) Work in which you can feel good about doing the job well

---

24. (a) Work in which you can feel good about doing the job well
(b) Work in which you can help other people

25. (a) Work in which you could help other people
(b) Work in which you could lead other people

26. (a) Work in which you can make a lot of money
(b) Work in which you would do the same kind of work your father does

27. (a) Work where you can get ahead
(b) Work in which you are always sure of having a job

28. (a) Work in which you are always sure of having a job
(b) Work in which you could make or invent new things

29. (a) Work in which you would have a nice place to work
(b) Work in which you can one day become famous

30. (a) Work which you are free to do in your own way
(b) Work in which you would be doing many different things

31. (a) Work in which you can one day become famous
(b) Work in which you are always sure of having a job

32. (a) Work in which you would have a nice place to work
(b) Work in which you can learn about many interesting things

33. (a) Work in which you would have a nice place to work
(b) Work in which you are always sure of having a job

34. (a) Work in which you could lead other people
(b) Work in which you are always sure of having a job

35. (a) Work in which you would do the same kind of work your father does
(b) Work in which you would have a nice place to work

36. (a) Work like that of a musician or an artist
(b) Work in which you can help other people

37. (a) Work in which you would do the same kind of work your father does
(b) Work in which you can learn about many interesting things

38. (a) Work which you are free to do in your own way
(b) Work where you can get ahead

39. (a) Work like that of a musician or an artist
(b) Work in which you could make or invent new things

40. (a) Work where you can get ahead
(b) Work in which you could lead other people

41. (a) Work like that of a musician or an artist
(b) Work where you can get ahead

42. (a) Work where you can get ahead
(b) Work in which you would do the same kind of work your father does

43. (a) Work which you are free to do in your own way
(b) Work in which you can learn about many interesting things

44. (a) Work in which you can one day become famous
(b) Work in which you can learn about many interesting things

45. (a) Work in which you can be with people you like
(b) Work in which you could lead other people

46. (a) Work in which you can be with people you like
(b) Work in which you could make or invent new things

47. (a) Work in which you can one day become famous
(b) Work in which you would do the same kind of work your father does

48. (a) Work in which you would be doing many different things
(b) Work in which you can one day become famous

49. (a) Work in which you can make a lot of money
    (b) Work in which you would be doing many different things

50. (a) Work in which you would be doing many different things
    (b) Work like that of a musician or an artist

51. (a) Work in which you can feel good about doing the job well
    (b) Work in which you would be doing many different things

52. (a) Work in which you would do the same kind of work your father does
    (b) Work in which you could make or invent new things

53. (a) Work in which you could make or invent new things
    (b) Work where you can get ahead

54. (a) Work in which you could lead other people
    (b) Work in which you would do the same kind of work your father does

55. (a) Work in which you would be doing many different things
    (b) Work in which you can learn about many interesting things

56. (a) Work in which you would do the same kind of work your father does
    (b) Work in which you are always sure of having a job

57. (a) Work in which you can help other people
    (b) Work in which you are always sure of having a job

58. (a) Work in which you can learn about many interesting things
    (b) Work in which you can feel good about doing the job well

59. (a) Work in which you could make or invent new things
    (b) Work in which you have a nice place to work

60. (a) Work in which you can feel good about doing the job well
    (b) Work in which you can one day become famous

61. (a) Work in which you are always sure of having a job
(b) Work in which you can feel good about doing the job well

62. (a) Work in which you would do the same kind of work your father does
(b) Work in which you can be with people you like

63. (a) Work like that of a musician or an artist
(b) Work in which you can learn about many interesting things

64. (a) Work where you can get ahead
(b) Work in which you could make or invent new things

65. (a) Work in which you could be doing many different things
(b) Work in which you are always sure of having a job

66. (a) Work in which you can feel good about doing the job well
(b) Work in which you would do the same kind of work your father does

67. (a) Work in which you are always sure of having a job
(b) Work which you are free to do in your own way

68. (a) Work in which you would have a nice place to work
(b) Work in which you would be doing many different things

69. (a) Work in which you can one day become famous
(b) Work like that of a musician or an artist

70. (a) Work in which you can be with people you like
(b) Work like that of a musician or an artist

71. (a) Work in which you can one day become famous
(b) Work which you are free to do in your own way

72. (a) Work in which you can feel good about doing the job well
(b) Work in which you would have a nice place to work

73. (a) Work where you can get ahead
(b) Work in which you can one day become famous

---

74. (a) Work in which you could lead other people
(b) Work in which you would have a nice place to work

---

75. (a) Work in which you can make a lot of money
(b) Work in which you could make or invent new things

---

76. (a) Work in which you can learn about many interesting things
(b) Work in which you can be with people you like

---

77. (a) Work in which you would be doing many different things
(b) Work in which you would do the same kind of work your father does

---

78. (a) Work where you can get ahead
(b) Work in which you can be with people you like

---

79. (a) Work in which you can help other people
(b) Work in which you would have a nice place to work

---

80. (a) Work in which you could make or invent new things
(b) Work in which you can one day become famous

---

81. (a) Work in which you are always sure of having a job
(b) Work in which you can learn about many interesting things

---

82. (a) Work in which you can feel good about doing the job well
(b) Work in which you could lead other people

---

83. (a) Work where you can get ahead
(b) Work in which you can make a lot of money

---

84. (a) Work in which you can help other people
(b) Work in which you would be doing many different things

85. (a) Work like that of a musician or an artist
(b) Work in which you can feel good about doing the job well

---

86. (a) Work which you are free to do in your own way
(b) Work in which you can feel good about doing the job well

---

87. (a) Work in which you can learn about many interesting things
(b) Work in which you could make or invent new things

---

88. (a) Work in which you would be doing many different things
(b) Work in which you can be with people you like

---

89. (a) Work in which you could make or invent new things
(b) Work in which you would be doing many different things

---

90. (a) Work in which you are free to do in your own way
(b) Work in which you could make or invent new things

---

91. (a) Work in which you could make or invent new things
(b) Work in which you could lead other people

---

92. (a) Work in which you are always sure of having a job
(b) Work in which you can one day become famous

---

93. (a) Work in which you can make a lot of money
(b) Work like that of a musician or an artist

---

94. (a) Work in which you can feel good about doing the job well
(b) Work where you can get ahead

---

95. (a) Work in which you would have a nice place to work
(b) Work like that of a musician or an artist

---

96. (a) Work like that of a musician or an artist
(b) Work in which you could lead other people

97. (a) Work where you can get ahead
(b) Work in which you can help other people

98. (a) Work in which you are always sure of having a job
(b) Work in which you can make a lot of money

99. (a) Work in which you could lead other people
(b) Work in which you can make a lot of money

100. (a) Work in which you can be with people you like
(b) Work which you are free to do in your own way

101. (a) Work in which you can help other people
(b) Work in which you can one day become famous

102. (a) Work in which you are always sure of having a job
(b) Work in which you can be with people you like

103. (a) Work in which you can learn about many interesting things
(b) Work in which you can make a lot of money

104. (a) Work which you are free to do in your own way
(b) Work in which you would do the same kind of work your father does

105. (a) Work in which you can be with people you like
(b) Work in which you can feel good about doing the job well

106. (a) Work in which you could make or invent new things
(b) Work in which you can help other people

107. (a) Work in which you would have a nice place to work
(b) Work where you can get ahead

108. (a) Work in which you are always sure of having a job
(b) Work like that of a musician or an artist

109. (a) Work like that of a musician or an artist
     (b) Work which you are free to do in your own way

---

110. (a) Work in which you would be doing many different things
     (b) Work in which you could lead other people

APPENDIX E: PART I

Female Version*

CROSS-NATIONAL STUDY, STAGE I

OCCUPATIONAL INTEREST INVENTORY

Name ____

School ______________________ Grade ______________

Age _________________________ Sex ________________

City ________________________ Date _______________

INSTRUCTIONS

On the following four pages you will find a few easy questions we would like you to answer. There are no right or wrong answers to these questions; we are interested in your opinion.

Please listen carefully to the instructions that will be given to you for each page.

---

*Part II - Male Version
Is identical to Female Version with the exception of the last page, which is attached hereto.

1.

A. What job would you like to have when you grow up? ________________

____

B. Describe the work you would in this job ________________

____

C. Put an "X" in the circle where you think this job fits.

Best and most important job anyone can have.

○
○
○
○
○
○
○
○

Worst and least important job anyone can have.

2.

A. What job do you think you probably will have when you grow up? ________________

____

B. Describe the work you would do in this job. ________________

____

____

C. Put an "X" in the circle where you think this job fits.

Best and most important job anyone can have.

○
○
○
○
○
○
○
○

Worst and least important job anyone can have.

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO

1.

A. What job do you think your father wants you to have when you grow up? ______________________________

B. Describe the kind of work that you would do in that job.

____

____

____

2.

A. What job do you think your mother wants you to have when you grow up? ______________________________

B. Describe the kind of work that you would do in that job.

____

____

____

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO

3.

A. At what job does your father work?________________________

B. Put an "X" in the circle where you think your father's job fits.

○ Best and most important job anyone can have.
○
○
○
○
○
○ Worst and least important job anyone can have.
○

4.

A. Does your mother work at anything other than housework?______________________

____

B. If she does, what does she do in her job?______________________

____

____

C. If she works, put an "X" in the circle where you think your mother's job fits.
If she is a housewife, put an "X" where you think the job housewife fits.

○ Best and most important job anyone can have.
○
○
○
○
○
○ Worst and least important job anyone can have.
○

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO

1. Put a plus (+) beside the three jobs below that you would most like to have when you grow up.

2. Put a minus (-) beside the three jobs that you would least like to have when you grow up.

________ Dishwasher
________ Lawyer
________ Washroom Attendant
________ Hospital Attendant
________ Domestic Servant
________ Medical Doctor
________ Dress Designer
________ University Professor
________ Secretary
________ Insurance Saleswoman
________ Accountant
________ Factory Worker
________ Waitress
________ Laundry Worker
________ Usher in Theatre
________ Social Worker
________ Restaurant Cook

________ Government Department Head
________ Laboratory Technician
________ Baby Sitter
________ Bank Clerk
________ Trained Nurse
________ Shop Clerk
________ Beauty Operator
________ Big Business Manager
________ Dressmaker
________ Primary School Teacher
________ Telephone Operator
________ High School Teacher
________ Typist

Female version

1. Put a plus (+) beside the three jobs below that you would most like to have when you grow up.
2. Put a minus (-) beside the three jobs below that you would least like to have when you grow up.

________ Day Laborer

________ Lawyer

________ Night Watchman

________ Barber

________ Janitor

________ Medical Doctor

________ Army Captain

________ University Professor

________ Bank Clerk

________ Office Manager

________ Insurance Agent

________ Waiter

________ Factory Worker

________ Dock Worker

________ Soldier

________ High School Teacher

________ Mechanic

________ Government Department Head

________ Bookeeper

________ Street Sweeper

________ Army Sergeant

________ Traveling Salesman

________ Carpenter

________ Truck Driver

________ Big Business Manager

________ Electrician

________ Owner of Grocery Store

________ Shop Clerk

________ Accountant

________ Restaurant Cook

Male version

APPENDIX F: PART I

Female Version*

CROSS-NATIONAL STUDY, STAGE III

OCCUPATIONAL INTEREST INVENTORY

Name____

School__________________________Grade______________

Age_____________________________Sex________________

City____________________ Date _____________________

INSTRUCTIONS

On the following four pages you will find a few easy questions we would like you to answer. There are no right or wrong answers to these questions; we are interested in your opinion. At the bottom of each page there will be a statement which asks you to stop and wait to go further until told to do so. Please observe this.

There is no time limit, but please work as rapidly as you can.

*PART II - Male Version
Is identical to Female Version with the exception of the last page, which is attached hereto.

1.

A. What job would you like to have when you grow up? ____________

____

____

B. Describe the work you would do in this job ________________

____

____

C. Put an "X" in the circle where you think this job fits.

○ Best and most important job anyone can have.
○
○
○
○
○
○ Worst and least important job anyone can have.
○

2.

A. What job do you think you probably will have when you grow up? ____________

____

B. Describe the work you would do in this job ________________

____

____

C. Put an "X" in the circle where you think this job fits.

○ Best and most important job anyone can have.
○
○
○
○
○
○ Worst and least important job anyone can have.
○

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO

3\.

A. At what job does your father work?

____

B. Put an "X" in the circle where you think your father's job fits.

○ Best and most important job anyone can have
○
○
○
○
○
○
○ Worst and least important job anyone can have.

4\.

A. Does your mother work at anything other than housework?

____

____

B. If she does, what does she do in her job?____________________

____

C. If she works, put an "X" in the circle where you think your mother's job fits.

○ Best and most important job anyone can have.
○
○
○
○
○
○
○ Worst and least important job anyone can have.

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO

1.
A. What job do you think your father wants you to have when you grow up? ______________________________

____

B. Describe the kind of work that you would do in that job.

____

____

2.
A. What job do you think your mother wants you to have when you grow up? ______________________________

____

B. Describe the kind of work you would do in that job.

____

____

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO

FEMALE

You will see that the page below is divided into nine sections, each containing a list of six jobs. Read each section carefully and from the jobs in that section only choose the one that you would most like to do when you are grown up. Mark the space by that job with a plus sign (+). Then choose from the same section the job you would least like to do when you grow up. Mark the space next to that job with a minus sign (-).

Make sure you have one plus and one minus sign in each section.

_____ Nurse
_____ Typist
_____ Nursery School Teacher
_____ Policewoman
_____ Florist
_____ Cashier

_____ Lawyer
_____ Social Worker
_____ High School Teacher
_____ Scientist
_____ Congress Woman
_____ Pharmacist

_____ Photographer
_____ Assembly-Line Worker
_____ Private Secretary
_____ Factory Machine Operator
_____ Dance Instructor
_____ Beauty Shop Assistant

_____ Hotel Receptionist
_____ Filing Clerk
_____ Elevator Operator
_____ Cosmetic Saleslady
_____ Office Cleaner
_____ Laundry Worker

_____ Ladies' Hair Stylist
_____ Magazine Writer
_____ Telephone Operator
_____ Dentist
_____ Interior Decorator
_____ Dressmaker

_____ Waitress
_____ Maid
_____ Cloak Room Girl
_____ Dishwasher
_____ Grocery Story Checker
_____ Rest Room Attendant

_____ Bank Clerk
_____ Veterinarian
_____ High School Counselor
_____ Librarian
_____ Large Office Manager
_____ Owner of Gift Shop

_____ Cook
_____ Mail Clerk
_____ WAC
_____ Baby Sitter
_____ Shop Clerk
_____ Movie Ticket Seller

_____ Medical Technician
_____ University Professor
_____ Dietician

_____ Medical Doctor
_____ Large Business Executive
_____ Dental Technician

MALE

You will see that the page below is divided into nine sections, each containing a list of six jobs. Read each section carefully and from the jobs in that section only choose the one that you would most like to do when you are grown up. Mark the space by that job with a plus sign (+). Then choose from the same section the job you would least like to do when you grow up. Mark the space next to that job with a minus sign (-).

Make sure you have one plus and one minus sign in each section.

______ Bank Clerk
______ Salesman
______ Electrician
______ Tailor
______ Army Sergeant
______ Railroad Engineer

______ Lawyer
______ Architect
______ Army Major
______ Bank President
______ Medical Doctor
______ High School Teacher

______ Drafsman
______ Factory Worker
______ Manager of Grocery Store
______ Taxi Driver
______ X-Ray Technician
______ Milkman

______ Machinist
______ Carpenter
______ Window Cleaner
______ Butcher
______ Gas Station Attendant
______ Night Watchman

______ Policeman
______ Dentist
______ Motor Mechanic
______ Geologist
______ Airline Pilot
______ Fireman

______ Bus Driver
______ Janitor
______ Waiter
______ Trash Collector
______ Soldier
______ Dishwasher

______ Driving Instructor
______ Journalist
______ Advertising Executive
______ Photographer
______ Veterinary Surgeon
______ Small Business Owner

______ Cook
______ Plumber
______ Barber
______ Truck Driver
______ Brick Layer
______ Tool & Die Maker

______ University Professor
______ Forest Ranger
______ Navy Admiral
______ Sheriff
______ Owner of Large Business
______ Dance Instructor

APPENDIX G

STAGE I SOCIAL ATTITUDES INVENTORY

Female Version*

Name ____

School ______________________________ Grade ______________

Age ____________________________ Sex ______________

City __________________________ Date ______________

INSTRUCTIONS

The following questions were made up to help us understand better what young people like and how they feel. Your answers will be looked at along with those of other young people your own age. There are no correct nor incorrect answers. You may answer as you like. All we want is that you answer according to what you really believe and what you really feel.

Now read the following example and the two questions below the example. If your answer to the first question is "yes," you put an "X" below the word "yes." If your answer to the first question is "no", put an "X" below the word "no." Do the same with the second question.

Example: Mary is very good at roller-skating.

	Yes	No
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

SOCIAL ATTITUDES INVENTORY

1. When the class bully comes looking for trouble, Judy ignores him.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

2. Martha Tries to make her parents change their minds by proving to them they are wrong.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

3. To be a good friend to her classmate, Liz stayed in during recess to help her friend finish a lesson.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

4. Nina often says that she isn't afraid of anything.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

5. Sally decides for herself how to use her time.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

6. When Marie was invited to a party, she didn't know what to do.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

7. Margie's friend spilled ink on Margie's books, so Margie spilled ink on her friend's book, too.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

8. Claire gets angry if she can't do everything better than the others.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

9. Ruth was afraid to talk in front of the class, but she did it anyway.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

10. Rachel does what her teacher tells her to do even if she thinks the teacher is wrong.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

11. When Cris broke the vase, she hid the pieces so her mother wouldn't find out.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

12. When the teacher scolded Elaine for not knowing the answer to the problem, Elaine talked back to her angrily.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

13. Roberta makes friends quickly wherever she goes.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

14. When the teacher criticized Rose, she explained why she did what she did.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

15. When Alice's parents punish her, or won't let her do something, she tries to get even with them.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

16. Katie is not afraid of nightmares because she knows her parents are nearby.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

17. After missing some questions on the arithmetic exam, Jane went home and practiced working problems.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

18. When Sheila's friends disagreed with her, she lost her temper.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

19. Joyce was frightened when she heard strange sounds at night, but she got a flashlight and went to see what it was.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

20. Eva would rather have her teacher help her with her arithmetic problems than to do them by herself.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

21. Susan knew the other girls were talking about her, but she didn't let it bother her.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

22. When Debby wasn't allowed to join the club, she told everyone she didn't really want to be a member.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

23. Paula did not take part in the game because she was afraid she would not do well.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

24. When the teacher threatened to punish Grace, Grace stayed calm and tried to find out why the teacher was upset with her.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

25. Renee was worried about playing in an important game, but she felt better after her parents encouraged her.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

26. Even though she hates it, Linda puts up with her little sister's meanness because she knows her sister is younger than she is.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

27. When Sandy's schoolmates began to tease her, she didn't do anything about it; she just felt bad.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

28. Sharon waits to see what her friends are going to do before she makes up her mind.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

29. Lynn was really afraid of swimming in the deep water, but she said she did not want to swim because she was tired.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

30. When her teachers get upset with her, Jill gets very sad.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

31. Nancy pretends that she does not understand when her teacher calls on her and she doesn't know the answer.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

32. Kathy does nothing when her older brother hits her.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

33. When her friends angrily accused her of cheating, Peggy got the rules and showed them she was playing the game right.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

34. Jeanne's mother scolded her because she didn't watch after her little brother, so Jeanne hit her brother when she got the chance.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

35. Eileen hid her school books so she wouldn't have to do her homework. She told her parents she left them at school.

	YES	NO
Am I like her?	( )	( )
Do I want to be like her?	( )	( )

36. When Bernice lost the money her mother gave her to pay the bill, she was too frightened to go home.

	YES	NO
Am I like her?	☐	☐
Do I want to be like her?	☐	☐

37. When Dorothy's father corrects her, Dorothy doesn't pay attention.

	YES	NO
Am I like her?	☐	☐
Do I want to be like her?	☐	☐

38. Since the box Ann had to carry was large, she waited for somebody to come and help her.

	YES	NO
Am I like her?	☐	☐
Do I want to be like her?	☐	☐

39. When the other kids said they didn't want her to play, Ellen just sat there and felt sad.

	YES	NO
Am I like her?	☐	☐
Do I want to be like her?	☐	☐

40. When Marsha's mother gives her orders, she listens to her mother respectfully.

	YES	NO
Am I like her?	☐	☐
Do I want to be like her?	☐	☐

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*The male version of this instrument uses male names and pronouns in each of the above forty items.

APPENDIX H

Stage III Social Attitudes Inventory

Female Version*

Name____

School____

Age___________________________Sex___________________

Grade_________________________Date___________________

City____

INSTRUCTIONS

The following questions were made up to help us understand what young people like and how they feel. Your answers will be looked at along with those of other young people of your own age. There are no right or wrong answers. We want you to say what you really think.

On the following pages you will find a number of sentences describing a child of your own age. Each sentence has four endings. Each ending is a description of what the child might do when the events in the sentence happen. Read each sentence and the different endings. Then put an X beside the ending that is right for you.

Here is an example to help you understand what to do.

Susan got bad marks in her school work. In her place I would

________ be very unhappy

________ pretend I didn't mind

________ decide to work harder next time

________ think the teacher had been unfair

Now put an X on the line beside the ending which is closest to what you would do.

1. Mary and her parents do not always agree. In her place I would
______ try to explain my point of view
______ think over what my parents had said
______ go to my room and sulk
______ take no notice and go my own way

2. It is Nancy's first day at a new school. In her place I would
______ worry about what I should do
______ join in with the other children right away
______ stay by myself
______ join in when the other children asked me

3. A classmate has deliberately messed up Betty's school book. In her place I would
______ get my own back
______ ask her why she had done it
______ tell my teacher
______ get upset but not do anything

4. Elaine made mistakes on an arithmetic test. In her place I would
______ practice the ones I'd missed
______ forget about them
______ ask the teacher for help
______ make excuses

5. Diana thought the teacher was being unfair. In her place I would
______ see what my friends thought about it
______ argue with the teacher
______ just feel angry
______ explain my point of view

6. Janice was asked to give a talk to the class. In her place I would
______ do my best
______ just get on with it
______ refuse to do it
______ worry about it

7. Some children had talked about Ann behind her back. In her place I would
______ not take any notice
______ talk about them behind their backs
______ lose my temper
______ try to discuss it with them

8. Marsha's little sister is mean to her sometimes. In her place I would
______ talk to her about it
______ put up with her
______ get back at her
______ tell her off

9. Linda was doing some difficult schoolwork. In her place I would
______ think about something else
______ try for awhile and then give up
______ get some hint from the teacher
______ do it by myself

10. Barbara broke her teacher's special pen. In her place I would
______ tell my teacher immediately
______ pretend I didn't do it
______ try to get the teacher another pen
______ hope the teacher wouldn't notice

11. A bigger classmate threatened to hit Kay at school the next day. In her place I would
______ not go to school
______ tell my teacher
______ try to find out why she wanted to hit me
______ tell my mother I felt ill

12. Jane's friends didn't ask her to play with them. In her place I would
______ say I didn't want to play with them anyway
______ get angry
______ ask them to let me play
______ not mind and remain friends

13. Sue was playing ball and another child took it away from her. In her place I would
______ decide to play something else
______ ask for the ball back
______ hit her
______ find out why she took the ball

14. Lisa had a lot of homework to do. In her place I would
______ get someone to do it for me
______ do it as soon as I got home
______ not do it
______ do it unwillingly

15. Helen was punished by her parents. In her place I would
______ go to my room and sulk
______ accept my parents' point of view
______ try to be better in the future
______ take it out on my brothers and sisters

16. Shirley's schoolmates began to tease her. In her place I would
______ ignore them for awhile
______ tell them to stop it
______ just feel miserable
______ beat them up

17. Martha's parents sometimes make her angry. In her place I would
______ explain my point of view
______ go outside
______ try not to show my anger
______ shout at them

18. Carol had a heavy load to carry. In her place I would
_____ get someone to help me
______ carry it by myself if I could
______ try to get out of it
______ leave it as long as possible

19. Paula's teacher threatened to punish her. In her place I would
______ feel upset
______ get very angry
______ try to find out why the teacher was cross
______ explain to the teacher what I had done

20. Judy sometimes feels afraid of something. In her place I would
______ ask for help
______ try and overcome my fear
______ run away from what had frightened me
______ hope it would go away

21. Sometimes people ignored Patsy. In her place I would
______ ignore them too
______ try to find out why
______ wonder if it was my fault
______ get very cross

22. Sarah's classmates called her names. In her place I would
______ try to find out why
______ call them names back
______ get angry
______ ignore the classmates

23. Sharon sometimes has to do jobs at home. In her place I would
______ keep away
______ put them off but do them in the end
______ do them right away
______ get my brother or sister to do it

24. Julie went shopping for her mother and lost the money she had given her. In her place I would
______ not know what to do
______ replace it with money from my money box
______ go home and tell what happened
______ say someone took the money

25. Gail is sometimes worried. In her place I would
______ go to my parents for help
______ try to forget about the worry
______ try to work out what to do
______ do something else

26. Jan's friend sometimes hurts her feelings. In her place I would
______ talk it out with my friend
______ hurt her feelings too
______ get very cross with my friend
______ try to take it

27. Peggy was hit by a classmate. In her place I would
______ not do anything
______ go away
______ try to find out why she hit me
______ get my friends to help

28. Jean sometimes has a lot of work to do. In her place I would
______ work as hard as I could
______ go out with my friends
______ try to forget about it
______ ask for help

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* The male version of this instrument uses male names and pronouns in each of the above twenty-eight items.

APPENDIX I

Stage III Views of Life

Name ______________________________

Age ______________ Sex ______________

School ______________ Grade ______________

Teacher ______________ City ______________

Date ______________________________

INSTRUCTIONS

Different people have different ways of looking at life. We are interested in finding your opinions about life to compare them with the opinions of students in other countries. The following pairs of sentences state different opinions about life. Although the choice will sometimes be difficult, please check one statement in each pair which comes closest to your own opinion. We don't want you to tell us the way you think life ought to work, but try to tell us your opinion of how life really works. No matter how difficult the choice, select only one statement per pair. There is no right or wrong answer, and you will not be given a high or low grade based on your answers.

VIEWS OF LIFE - 1968

1. (a) When something is going wrong, it is usually best to take some kind of action.
   (b) When something is going wrong, it is usually best to wait and see what happens.

2. (a) When there is a problem one should always try to face it.
   (b) There are some problems that are best ignored.

3. (a) If a teacher tells me to try to do better in my school work, it is usually because my work isn't very good.
   (b) If a teacher tells me to try to do better in my school work, it is usually because she wants all her students to try harder.

4. (a) It is better to wait before acting.
   (b) Tomorrow is usually too late.

5. (a) I don't need the approval of other people.
   (b) I need the approval of other people.

6. (a) Quick action is usually best in most situations.
   (b) Quick action is usually careless action.

7. (a) When a person is uncertain, it is usually best to wait and see what happens.
   (b) When a person is uncertain, it is usually best to take some kind of action.

8. (a) I like to work by myself.
   (b) I like to work with other people.

9. (a) It is better to be slow than to be fast.
   (b) It is better to be fast than to be slow.

10. (a) A really intelligent person knows when to listen to the advice of others.
    (b) A really intelligent person knows how to decide things for himself.

11. (a) The most important part of a job would be getting along with fellow workers.
    (b) The most important part of a job would be getting things done.

12. (a) There are few things that cannot be done if a person tries hard enough.

(b) There are many things that cannot be done no matter how hard a person tries.

13. (a) The most important thing in school is the grades a person makes.
(b) The most important thing in school is how hard a person works, no matter what his grades are.

14. (a) Life is easy.
(b) Life is hard.

15. (a) It is better to be bold.
(b) It is better to be cautious.

16. (a) One should usually go along with the opinion of the majority.
(b) One should usually act according to his own opinion.

17. (a) Work first, friendship second.
(b) Friendship first, work second.

18. (a) I am usually cautious.
(b) I am usually bold.

19. (a) If something disgusts me, I protest.
(b) If something disgusts me, I ignore it.

20. (a) The world is the way it is and there is very little that man can do about it.
(b) Man can change the world to suit his own needs.

21. (a) When I can't understand something in school, it is usually because the teacher didn't explain it clearly.
(b) When I can't understand something in school, it is usually because I didn't listen.

22. (a) When a person thinks his (or her) father's orders are unreasonable, he should feel free to question them.
(b) A father's orders should always be obeyed.

23. (a) I don't have enough self confidence.
(b) I have enough self confidence.

24. (a) When I am nervous I feel better if I move around.
(b) When I am nervous I feel better if I stay still.

25. (a) I usually daydream about doing things I can really do if I want to.
(b) I usually daydream about doing impossible things.

26. (a) A person is usually happier if he learns how to accept his feelings.
    (b) A person is usually happier if he learns how to control his feelings.

27. (a) It is best to work out one's problems without seeking help from others.
    (b) It is best to seek help from others in working out one's problems.

28. (a) I believe I am very intelligent.
    (b) I believe I am of average intelligence.

29. (a) Life is simple.
    (b) Life is complex.

30. (a) I daydream about many things I never do.
    (b) I usually do the things I want rather than daydream about them.

31. (a) When I do well on a test in school, it is usually because I studied for the test.
    (b) When I do well on a test in school, it is usually because the test was easy.

32. (a) Work is something that must be done.
    (b) Work is its own reward.

33. (a) I am satisfied with myself.
    (b) I am not satisfied with myself.

34. (a) I would rather have a job where the work is interesting.
    (b) I would rather have a job where the people are friendly.

35. (a) A person should be expressive.
    (b) A person should be calm and controlled.

36. (a) It is better to know how to obey than to know how to command.
    (b) It is better to know how to command than to know how to obey.

37. (a) Things are done best with people working together.
    (b) If a person wants things done right he has to do them by himself.

38. (a) When I learn something quickly in school, it is usually because it was explained well.
    (b) When I learn something quickly in school, it is usually because I paid close attention.

39. (a) When I am frightened, I feel better if I don't do anything.
(b) When I am frightened, I feel better if I do something active.

40. (a) A teacher's order should always be obeyed.
(b) When one thinks his teacher's orders are unreasonable he should feel free to question them.

41. (a) I have more difficulties with my friends.
(b) I have more difficulties with my work.

42. (a) Mankind can control the destiny of the world.
(b) Mankind cannot control the destiny of the world.

43. (a) Difficult problems are solved best by cooperation.
(b) Difficult problems are solved best by competition.

44. (a) If I am very angry, it is better if I shut up.
(b) If I am very angry, it is better if I yell.

45. (a) I like to take my time doing things.
(b) I like to do things as fast as I can.

46. (a) In spite of what people say, the best way to get ahead is to build relationships with the right people.
(b) In spite of what people say, the best way to get ahead is to do a good job.

47. (a) Most of a person's problems are due to bad luck.
(b) A person brings most of his problems upon himself.

48. (a) In the long run, a person who works fast gets more done.
(b) In the long run, a person who works slowly gets more done.

49. (a) A person should be respected because of the title he holds.
(b) A person should be respected for what he has done.

50. (a) One should not express disagreement with others if it will cause hard feelings.
(b) One should always state his own views even if it might cause hard feelings.

51. (a) A person should not worry about things he can do nothing about.
(b) It is often interesting to think about problems, even if nothing can be done.

52. (a) When I am with friends, I like to be the first to suggest what to do.
(b) When I am with friends, I like to let them suggest what we do.

53. (a) Work is to be enjoyed.
    (b) Work is to be endured.

54. (a) Competition is better than cooperation to get things done.
    (b) Cooperation is better than competition to get things done.

55. (a) I usually begin doing things I should do without being told.
    (b) I usually wait until I am told before I do something I should do.

56. (a) I would rather have a small job making a comfortable living and have a lot of time with my friends.
    (b) I would rather have a more important job making a lot of money, even if I did not have enough time for my friends.

57. (a) A person should not question his (Or her) mother's word.
    (b) Any mother can make mistakes and one should feel free to question her word when it seems wrong.

58. (a) My friends bring me the most happiness.
    (b) Doing something well brings me the most happiness.

59. (a) Life is to be enjoyed.
    (b) Life is to be endured.

60. (a) I prefer to use my own ideas rather than those of others.
    (b) I prefer to use other people's ideas.

APPENDIX J

FINAL VERSION - SENTENCE COMPLETION

STAGE I

Name____

School____________________ Grade______________

Age______________________ Sex________________

City______________________ Date_______________

INSTRUCTIONS

On the following two pages you will find 42 sentences in which some words are missing. Please complete each of these sentences with the first word or words that come to mind. There are no right or wrong answers, just write what you think.

It is important that you finish all 42 sentences, and do not leave any of them blank. If you come to a sentence and cannot think of a word or words to complete it, continue with the sentences which follow and when you have finished the others, return to the ones you have not filled in and complete them.

There is no time limit, but please work as rapidly as you can.

1. Most people are ____________________.
2. When my mother and I are together, we ____________________.
3. Being in school is ____________________.
4. I feel proud when ____________________.
5. When people ignore me, I ____________________.
6. When my parents made me mad, I ____________________.
7. I work hardest for ____________________.
8. Most people treat other people ____________________.
9. I get really angry when ____________________.
10. When I need help, I usually depend on ____________________.
11. When people tell me to do something, I ____________________.
12. When I see a policeman, I ____________________.
13. If a big dog attacked me, I ____________________.
14. My father thinks I am ____________________.
15. I think most teachers are ____________________.
16. When there is something difficult to do, I ____________________.
17. I don't like people who ____________________.
18. When my mother punishes me, I ____________________.
19. When people get scared, they ____________________.
20. When I notice that others do something better in school than I, I ____________________.
21. Doing anything to get what you want is ____________________.
22. When my father and I are together, we ____________________.
23. When I get worried, I ____________________.
24. I think most adults are ____________________.
25. When I get mad, I ____________________.
26. A mother should ____________________ her children.
27. Hard work is ____________________.
28. It upsets me to think about ____________________.
29. When my father bawls me out, I ____________________.
30. What I want to do most in life is ____________________.
31. When you work with other people, they ____________________.
32. When somebody hurts my feelings, I ____________________.
33. A father should ____________________ his children.
34. If one of my friends is mad at me, I ____________________.
35. People will work hardest if you ____________________.
36. If I can't get what I want, I ____________________.
37. My mother thinks I am ____________________.
38. In my school work, I ____________________.
39. People who work with me are ____________________.
40. I am afraid of ____________________.
41. When I think of the United States, I ____________________.
42. To work successfully with other people, you have to ____________________.

APPENDIX K

Stage III Sentence Completion

Name____

School__________________________Grade__________

Teacher_________________________Age____________

Sex__________________________City____________

Date____

INSTRUCTIONS

On the following page you will find 40 sentences in which some words are missing. Please complete each of these sentences with the first word or words that come to your mind. There are no right or wrong answers, just write what you think.

It is important that you finish all 40 sentences, and do not leave any of them blank. If you come to a sentence and cannot think of a word or words to complete it, continue with the sentences which follow and when you have finished the others, return to the ones you have not filled in and complete them.

There is no time limit, but please work as rapidly as you can.

1. Worrying about school grades is____________________.
2. If my friends and I couldn't agree upon what to do, I________
____________________________.
3. I work hardest for ____________________.
4. If a big dog looked like he were about to attack me, I________
____________________________.
5. I think most policemen are ____________________.
6. If I had difficult homework to do, I____________________.
7. Trying to do something better than other people is__________.
8. My mother thinks I am ____________________.
9. If the class bully were bothering me, I____________________.
10. I feel proud when ____________________.
11. I think most teachers are ____________________.
12. If one of my friends is mad at me, I ____________________.
13. When someone hurts my feelings, I____________________.
14. When I think of the United States, I____________________.
15. I think most adults are____________________.
16. When you work with people your own age, they____________.
17. When there is something difficult to do, I____________.
18. If I made a mistake in my lessons and my classmates laughed
at me, I____________________.
19. I think school is ____________________.
20. When my father bawls me out, I____________________.
21. When my mother and I are together, we____________________.
22. It upsets me to think about ____________________.
23. I really get angry when ____________________.
24. When my parents make me mad, I ____________________.
25. When I notice that others do something better in school than
I, ____________________.
26. When my father and I are together, we____________________.
27. I think most people my age are____________________.
28. When people ignore me, I____________________.
29. When I get worried, I ____________________.
30. When my mother punishes me, I ____________________.
31. When people tell me to do something, I ____________________.
32. What I want to do most in life is ____________________.
33. When I get mad, I ____________________.
34. When I need help, I usually depend on____________________.
35. People my age who work with me are____________________.
36. Having rules set by your parents is ____________________.
37. If I lose most of the time at playing a certain game, I ____
____________________________.
38. My father thinks I am ____________________.
39. Hard work is ____________________.
40. Most people treat other people____________________.

APPENDIX L

STORY COMPLETION
STAGE I

Name ____

School ________________________ Grade ______________

Age __________________________ Sex ________________

City ______________________ Date __________________

INSTRUCTIONS

On the following pages you will find at the top of each page the beginning of a story. In each story you are to read the beginning very carefully and then finish the story in your own words. Tell what happened, what the people in the story think, how they feel, and how the story finally comes out. Make sure you write a complete story, not just a sentence or two. There is no correct way to finish any of the stories; just write what you think happens. Use your imagination.

You have 10 stories to complete in this period. It is very important that you finish all of the stories. When you are through with a story go right on to the next one.

STORY 1

Finish this story by telling what happened and how the story ends.

Mary's teacher suggested that the class write a paper over the weekend. This was extra work that the teacher did not usually ask them to do. If they did it, they could get extra credit toward their grade in class. On Sunday, Mary was getting ready to go out with some friends when she remembered the paper. Mary ....

STORY 2

John was playing in the street with his friends. His father came by and told them to get out of the street because it was not safe to play there. Then his father left. John ....

STORY 3

Barbara was working inside the house and her little sister was playing outside with her friends. Suddenly Barbara heard her little sister start to cry. Barbara ....

STORY 4

Billy's family moved into a new neighborhood where he did not know anybody. The first day he went out of the house he saw some boys at the corner of the street playing. Billy ....

STORY 5

George and his mother had been visiting George's grandmother in a different city. After they boarded the train to go home George asked his mother if he could go get a drink of water. His mother said he could but told him not to get off the train. George went to get the water and saw a candy stand in the station. He got off the train and while he was buying some candy the train pulled out of the station. George ....

STORY 6

A boy named Tom was trying to make a kite. He was putting the last stick into place when the stick broke. He did not have any more sticks. Tom.......................

STORY 7

Jean and her friends started to play a game. Jean thought it should be played one way; her friend thought it should be played differently. Jean ....

STORY 8

One of Peter's classmates came walking up to him one day in an angry mood. He shoved Peter hard against the wall. Peter ....

STORY 9

Helen was out shopping by herself when suddenly one of the sales ladies in the store called to the manager, "That's the girl I told you about." The manager started walking over to Helen with an angry look on his face. Helen ....

STORY 10

Grace thought that her mother had punished her unfairly. Grace......

APPENDIX M

STAGE III
STORY COMPLETION

Name____

School____________________Grade______Teacher__________

Age______________________Sex______________________

City______________________Date______________________

INSTRUCTIONS

On the following pages you will find at the top of each page the beginning of a story. For each story you are to read the beginning very carefully and then finish the story in your own words. Tell what happened, what the people in the story think, how they feel, and how the story finally comes out. Make sure you write a complete story, not just a sentence or two. There is no correct way to finish any of the stories, just write what you think happens. Use your imagination. You will have seven stories to complete in this period and you will have exactly five minutes to write each story. You will be told when three minutes are up and when four minutes are up. At the end of five minutes everyone must stop writing on that story. If you finish writing a story before five minutes are up, then you should wait until you are told to go on to the next story. Do not begin writing the next story until you are told. Do not go back and work on an earlier story that you may not have finished.

Story 1

"Mary had a paper to write over the weekend for school on Monday. On Sunday, Mary was getting ready to go out with some friends when she remembered that she had not yet written the paper. Mary......"

Story 2

"Billy's family moved to a new town where he did not know anyone. On the first day he went out of the house, he saw some boys his age at the corner of the street playing. Billy........................"

Story 3

"One of Peter's classmates came walking up to him one day in an angry mood. He shoved Peter hard against the wall. Peter........."

Story 4

"Saturday Jane went to a movie. When the movie was over she went home. As she was going in the house she remembered that she had left her new coat at the movies. She had been warned about losing things in the past. Jane.............."

Story 5

"Everyone in Susan's class was to work on a project. The teacher had given the class a list of topics from which to choose. Susan was half finished with her topic when she found out that the topic she was working on was not on the list the teacher had given. Susan ...."

Story 6

"George was at a neighb[illegible] house one day visiting with his neighbor's little boy. George bu[illegible]nto a table and knocked off a valuable vase. It broke into ma[illegible]ieces. George.........................."

Story 7

"Bob's scout troop was having a contest for the best model racing car. The day before the contest Bob was finishing his car. One of the wheels broke into many pieces. He did not have any more wheels and he had already spent all of his money. Bob.................."

APPENDIX N

STAGE II - PARENT INTERVIEW INSTRUMENT

My name is ______________________________
I am from The University of Texas.

Last year your child was part of a large group in Austin selected to fill out some questionnaires at school. At the same time, similar groups of children in seven different countries were filling out the same questionnaires. We are interested in finding out how children handle different kinds of situations, what they think about jobs, occupations, and school.

We hope the results of this project will help improve education here and in other countries, too.

This year we are interviewing parents - here in Austin and in the same other countries we used last year. We would like to talk to mothers and fathers, too.

We, here at The University of Texas, are not interested in individuals as such, but Americans in general. Your replies will be coded and are strictly confidential. The interview takes about an hour. Would you co-operate with us and answer a few questions?

Answers to frequently asked questions:

Are you selling anything? ...... No.

Does this have anything to do with my child's grades ...... No.

Who is paying for this? .... The University of Texas through a grant from the U.S. Office of Education.

Have the Austin Schools approved of this? .... Yes.

Why was I selected? .... Because your child was one of the ones who filled out our questionnaires at school last year.

What use will be made of this material? ...... It will be used for scientific and research purposes only to help improve education

INFORMATION SHEET

1. Interviewer ______________________________ Father-Mother

2. ID Number ____________ Child's First Name ________ Age Group ___

3. Ages of X's Brothers and Sisters (M,F) ____________________

---

4. What adults live in your home?
Mother Others (who else?)
Father
Grandmother
Grandfather

---

5. Who takes care of X? (Main responsibility for X)
Mother Other
Father

6. Who else takes care of X? (Takes some responsibility for or spends time with X)

---

7. Birth Place (Mother) ____________________

8. Birth Place (Father) ____________________

9. Mother's Year of Birth ______________ (Age: __________)
25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64

10. Father's Year of Birth ______________ (Age: __________)
25 -29 30-34 35-39 40-44 45-49 50-54 55-59 60-64

11. Mother's Occupation ____________________

12. Father's Occupation ____________________

13. Mother's Education ____________________

14. Father's Education ____________________

---

15. Time in Present House: less than 1 1-2 3-4 5-6 7-8 9-10 11-12
13-14 15+

16. Where else have you lived since X was born?

17. Have there been any occasions when X has been away from home for 6 months or more?
Yes (if yes) Why?
No

18. (If yes) How old was X then?________

---

19. Has X ever been in the hospital?
Yes (If yes) Why?
No

20. (If yes) For how long?____________________

21. (If yes) How old was X then?______________________

---

22. Have there been any occasions when either parent has been living away from home regularly or for 6 months or more?

Mother	Father
Yes (If yes, what circumstances)	Yes (If yes, what circumstances)
No	No

---

23. Now we would like to get some information regarding X. Please give me some words or phrases which you feel describe X in terms of his schoolwork.

(If not answered fully above, get information on the following questions)

24. How does X feel about school?

25. What makes him feel that way?

26. How do you think he does in school?

27. Do you do anything to encourage X in his schoolwork?
Yes (If yes) What do you do?
No

28. Have you met X's teacher?
Yes (If yes) How did you meet?
No

29. When X has homework what does he usually do?

(If not answered fully above, get information on the following questions)

30. How does he go about it?

31. What do you do to see that X gets his homework done?

32. How often does he put off his homework to do other things?
Always
Frequently
Sometimes
Seldom
Never

33. What would he do if he were nearly finished with his homework and he found that he had been doing it the wrong way?

34. What do you feel the school's job or responsibility is?

35. How important do you think school is?
Most important
Very important
Important
Unimportant
Worthless

(If not answered fully above)

36. Why?

37. How far would you like your child to go in school?

38. How far do you think he really will go in school?

We are also interested in what children do outside of school; how they spend their time, their activities, how much time they spend around adults, how much with the family, etc.

39. When he is not in school, what kinds of things does X do?

(If not answered fully above, ask:)

40. What kinds of things does he do with you?

41. What kinds of things does he do with his mother?
father?

42. What kinds of things does he do with the family?

43. Does he belong to any clubs, organizations, or groups?
Yes (If yes, list)
No

44. Does he have any hobbies, lessons, or classes?
Yes (If yes, list)
No

---

45. When you want X to do something, how do you go about getting him to do it?

46. How does he respond to this?

47. What follow up is needed to see that he does it?

48. If you see that he is not doing a job the right way, what do you do?

49. How does he react to this?

---

50. What jobs or chores does he have around the house?

(If any chores are mentioned, get information on the following questions)

51. What are the reasons for his having them?

52. How often do you have to see that he does them?
Always
Frequently
Sometimes
Seldon
Never

53. Does he try to get others to do them for him?
Yes (If yes) Who?
No

54. How well does he do them?
Excellent
Good
Satisfactory
Poor
Very Poor

---

55. How often does X help around the house without being asked?
Always
Frequently
Sometimes
Seldom
Never

---

56. How do you usually discipline or punish X?

57. What does he do? (In response to punishment mentioned in 56)

58. How does his father usually discipline or punish X?
mother

59. What does X do? (In response to punishment mentioned in 58)

---

60. How does he react when you criticize him?

61. How does he react when his father criticizes him?
mother

62. How does he react when his brothers and sisters or other children criticize him?

(Do not ask parents of 10 year olds,63 through 68)

63. Does X have a regular job or work outside the home? (Record whether after school or during vacation)
Yes (If yes) What does he do?
No

(If not answered fully above, get information on the following questions)

64. How does he feel about his job?

65. Why does he work?

66. How did he get his job?

67. How hard does he work at his job?

68. Does he ask for help when he runs into problems or difficulties on the job?
Yes
No

---

69. What particular type of job or occupation would you like to see X take up when he is grown?

70. What type of job or occupation would you not like to see X take up when he is grown up?

71. What type of work do you feel X would like to do when he grows up?

72. What type of work do you feel X probably will do when he grows up?

73. Children are different in how they get along with other children. How does X get along with other children?

74. What do you do to help X get along with other children?

75. In what ways do X's friends influence his behavior?

76. What do you think about this? (Friend's influences described in 75)

---

77. When X gets worried what does he do about it?

(If not answered fully above, get information on the following questions)

78. What kinds of things does he worry about?

79. How do you tell when X is worried?

80. When he has worries does he turn to others for help?
Yes (If yes) Who?
No

81. What do you usually advise X to do when he is worried?

82. What kinds of things make X angry?

(If not answered fully above)

83. What else besides his brother and sisters make him angry?

84. What does X usually do when he gets angry?

85. What does X usually do when he gets angry at you?

86. What does X usually do when he gets angry at his father?

87. What doex X usually do when a friend is angry at him?

---

88. What does X usually do when someone hurts his feelings?

In addition to the information you've given us about X at home and school, we're also interested in your ideas and activities as a parent.

89. Different people feel different things are important. What do you feel are the important things a child should learn as a person, as he is growing up?

90. Have you taken any courses or training since you left school?
Yes (If yes) What kind?
No

(If yes, get information on the following questions)

91. Why did you take it (them)?

92. When did you take it (them)?

93. Did you complete it (them)?
Yes
No (If no) What happened?

94. Do you feel you gained from it?
Yes (If yes) How?
No

(Do not ask 95 through 103 of housewives)

95. You said you were a ____________________________, could you tell me how you came to be in this kind of work?

96. What is your job like?

(If not answered fully above, get information on the following questions)

97. How do you feel about it?

98. What do you like about it?

99. What do you dislike about it?

100. Would you choose the same kind of work if you had it to do over again?
Yes
No

101. When you are on the job and problems come up about the work, what do you do?

102. What is the best way to get along with your fellow workers (colleagues)?

103. What is the best way to get along with your boss or supervisor? (do not ask of professionals who have no supervisor)

---

104. What do you think or do when criticized?

(If not answered fully above, get information on the following questions)

105. By husband?
wife?

106. By friends?

107. By your own children?

108. What kinds of things make you angry?

109. What do you usually do when you are angry?

---

110. _______ do interesting things
_______ do different things
_______ nice place to work
_______ invent new things
_______ what father does
_______ always having a job
_______ help other people
_______ lead other people
_______ artist
_______ money
_______ get ahead
_______ own way
_______ be famous
_______ people you like
_______ doing job well

Now there is another thing I would like you to do for me. Here are some cards on which are printed some statements about work. Would you please read each one and then sort the cards into two piles. In the left hand pile put those which you would consider least important in choosing a job.

When this has been done say "Now I would like you to take each pile and place them in order from most to least, so on top of the left hand pile is the card with the statement that would be the most likely to influence you in choosing a job while at the bottom of the right hand pile is the card with the statement that would be the least important to you."

111. Is there anything else about X that you would like to tell me?

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